The OIL and GAS JOURNAL
PRODUCING REFINING MARKETING

VOL. 23. No. 20-A TULSA, OKLAHOMA, OCTOBER 9, 1924

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Crude Production Drops 16,000 Bbls.

Average daily production in United States week ended Oct. 4, 1,990,060 bbls. Loss from previous week, 16,415 bbls.

Output Falls Below 2,000,000 Bbls. Daily for First Time in Months. Oklahoma Chiefly Responsible

Highest daily average estimated production this year, week ended Aug. 23, 2,057,319 bbls. Lowest, January 12, 1,871,143 bbls.

By Andrew M. Rowley

For the first time since early this year production of crude oil in all fields of the United States during the past week fell below 2,000,000 barrels daily, the estimated output averaging 1,990,060 barrels a day. Operators throughout the country should be heartened by this news as the fact has been emphasized in these columns many times that any permanent improvement in the crude production situation could not be expected until production dropped below the 2,000,000-barrel mark.

Production of crude petroleum has decreased 42,000 barrels a day during the past two weeks. The output of all fields is now more than 67,000 barrels a day less than it was during the week ended August 23, when it is believed the peak output for this year was reached. The present production, however, is still considerably above the amount of domestic crude being delivered to consumers. Total production at this time is probably nearly on a par with consumption but it must be remembered there is about 200,000 barrels a day of Mexican crude imported into this country and delivered to consumers.

The fact crude oil is still being placed in storage is the best answer to the present situation. The decline of 12,000 barrels a day in production in two weeks is a hopeful sign but it should be considered only in the light of a step towards a betterment of the present price structure. As long as oil is being placed in storage there can be but little hope of increases in prices.

Oklahoma registered the greatest decline in production during the past week. Tonkawa showed the largest drop while the Stroud Field is declining rapidly in production. Of importance to operators in this State was the completion by T. B. Slick of a well extending in a northeasterly direction the Papoose Pool, the well being across the line of Hughes County in Okfuskee County and making 2,775 barrels in the first day. Of equal importance was the Shaffer Oil & Refining Company's completion in the Wewoka Field, which made 1,620 barrels in the first 24 hours from the Sykes sand at 3,200 feet. The well had dropped to 1,068 barrels on Monday.

A new field in California seems to have been opened by the Standard Oil Company when its first well, located on property leased from the Los Angeles Investment Company in Baldwin Hills near Inglewood and within a few miles of Los Angeles, came in as a pumper making 165 barrels of 18.4 gravity oil with a cut of 3 per cent.

The Midwest well producing from the Lakota sand in the Salt Creek Field in Wyoming is responsible for the activity being displayed by operators in that field which is really the only active section in the Rocky Mountain area this fall. The well, pinched in, is flowing 200 barrels of pipe line oil.

Production in Arkansas continues to decline, the drop last week averaging 1,845 barrels a day while Louisiana just about held its own. The Cotton Valley Field in Webster Parish, Louisiana, is about the only section showing any activity at this time and even there drilling is not as extensive as might be expected in a comparatively new field.

Prospects of material reductions in production in the Gulf Coast area are beginning to dim as a result of developments in that section. The steady output of the Vacuum Oil Company's well in Calcasieu Parish, Louisiana, near Lake Charles caused operators to postpone hopes of price increases and this situation was emphasized further during the past week when the Goose Creek Pool was extended nearly a mile from its original district and 400 feet from previous production when the Humble Oil & Refining Company brought in a well flowing 1,500 barrels at 4,125 feet.

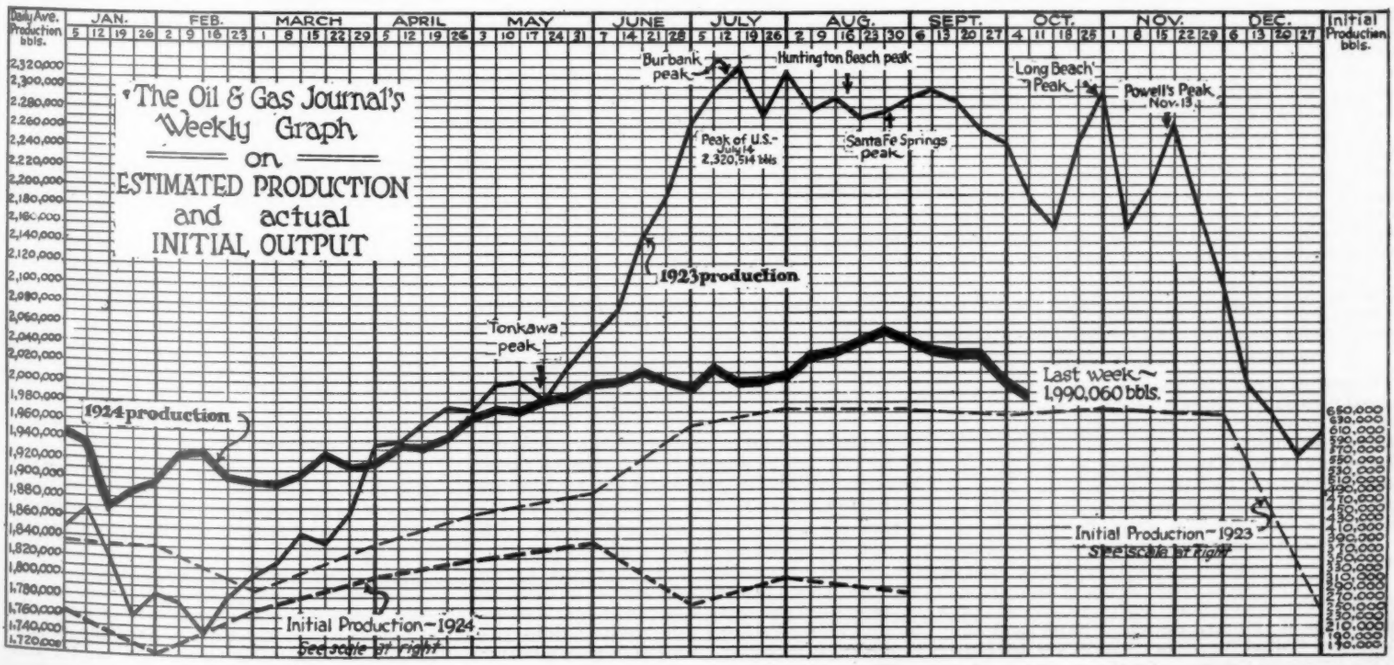
That operators in the United States must consider other countries when figuring future oil production was indicated this week when A. P. Serebrowsky, head of the Russian Oil Trust, received a cablegram announcing that a well in Bibi Eibat, Baku, came in flowing 50,000 barrels of pipe line oil.

PRODUCTION IN THE UNITED STATES

Estimated daily average production in the oil fields of the United States for the week ended October 4, and a comparison with previous week follows:

Oklahoma—Northern Fields:	Oct. 4.	Sept. 27
Tonkawa	102,685	108,460
Burbank	76,440	76,910
Other Osage Fields	44,170	47,350
Cushing and Shamrek	23,635	23,635
Bristow and Eastern Bristow	46,615	46,840
Cromwell	40,635	41,140
Stroud	11,890	14,960
Northern Miscellaneous	108,325	108,370
Southern Fields	69,100	69,580
Total Oklahoma	523,575	537,245
North Louisiana	53,930	54,130
Arkansas—		
El Dorado and Calion	12,065	12,080
Smackover Light	35,420	35,275
Smackover Heavy	78,765	80,740
Stephens and Nevada	3,640	3,640
Total Arkansas	129,890	131,735
North Central Texas	121,400	122,860
Powell	76,500	77,500
Mexia, Currie, Richland, etc.	53,100	59,950
Kansas	84,525	85,025
Total Mid-Continent Area	1,042,920	1,059,445
Gulf Coast	85,170	83,925
Southwest Texas	36,895	36,385
Eastern	107,980	107,750
Rocky Mountain Area	107,095	109,970
California—		
Santa Fe Springs	54,000	55,000
Long Beach	141,000	143,000
Huntington Beach	39,000	40,000
Torrance	52,000	52,000
Dominguez	34,000	30,000
Remainder of State	290,000	289,000
Total California	610,000	609,000
Total United States	1,990,060	2,006,475

DECREASE, 16,415 BARRELS


Daily Ave. Production bbls.
JAN. FEB. MARCH APRIL MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
Initial Production bbls.
"The Oil & Gas Journal's Weekly Graph on ESTIMATED PRODUCTION and actual INITIAL OUTPUT
Burbank peak
Huntington Beach peak
Long Beach Peak
Powell's Peak Nov. 13
Peak of U.S. July 14 2,320,514 bbls
Santa Fe Springs peak
1923 production
Tonkawa peak
1924 production
Last week ~ 1,990,060 bbls.
Initial Production ~ 1923
See scale at right
Initial Production ~ 1924
See scale at right

Exposition Attracts Record Crowds

Oil Industry's Greatest Exhibit of Equipment and Supplies Brings Together Men From All Producing Countries

By James McIntyre

The opening of the second International Petroleum Exposition and Congress in Tulsa, on Thursday, October 2, was attended by more than twice the number of people that saw the show on its first day last year. The 5,500 patrons who passed through the gates on Thursday were met by a show three times the size of the one which greeted last year's first audience.

The gaily decorated exposition grounds presented a lively and beautiful scene, while the interior of the seven big exhibition buildings and the neighborhood of the out-of-door displays hummed with industry. Given a continuance of the good weather which prevailed the first few days of the show it is reasonable to believe that a prediction of 200,000 paid admissions during the 10-day exposition season will not have been far amiss.

Splendid Pageant of Princesses

The opening of the exposition was preceded by a marvelous street pageant, witnessed by a crowd of 40,000 people who lined the streets traversed by the long parade, which extended for many blocks. The pageant was headed by Major Gerald O'Brien and his staff and was graced by the presence of Tulsa city officials and the officers and directors of the Exposition. But what attracted the crowd and delighted it was the succession of splendid floats on which sat enthroned King Petroleum, Queen Petrolia I, chosen last year, and 12 petroleum princesses from among whom the Queen of 1924 will be selected on Wednesday and enthroned Thursday when the second great petroleum parade, the Queen's Pageant, will be given.

King Petroleum was impersonated by John B. Means, a prominent oil operator and member of the bar of Tulsa; Queen Petrolia I, was Miss Dorothy Vensel, the daughter of a Tulsa oil man. The States of Pennsylvania, West Virginia, Ohio, Kentucky, Arkansas, Louisiana, Texas, Oklahoma, Kansas, Colorado, Wyoming and Montana each sent a princess to take part in the pageantry and to compete for the honor of reigning over the oil industry for the next year. The State princesses were Miss Catherine Dowd, Oil City, Pa.; Miss Margaret Trainer, Salem, W. Va.; Miss Ruth Patton, Delphos, Ohio; Miss Evelyn Kelley, Louisville, Ky.; Miss Glovina McMath, El Dorado, Ark.; Miss Lucile Haynes, Shereveport, La.; Miss Vivian Taylor, Coleman, Tex.; Miss Margaret McCormick, Tulsa, Okla.; Miss Ramona Marcella Trees, Winfield, Kans.; Miss Evelyn Conard, Greeley, Colo.; Miss Dorothy Logan, Douglas, Wyo., and Miss Wana Edwards, Forsyth, Mont. Miss Katherine Revard of Pawhuska, Okla., a member of the Osage tribe, impersonated the Indian princess.

The gorgeous floats, the impressive figure of the dignified king and the beautiful robes of the queen and princesses, together with their delightful personal charms, scored tremendously with the crowd, who accorded the participants a continuous ovation from the starting point all the way to the exposition gates on Madison Avenue, where the parade ended. It was a most auspicious beginning for the big show, which opened its gates without further formalities.

Gathered From Many Countries

Thereafter for eight hours a stream of people passed through the Peoria Avenue and Madison Avenue turnstiles, the crowd dividing its time between the outdoor displays, the Exposition buildings and the theater, where a band concert, revue and style show is scheduled for every afternoon and evening and where the princesses are introduced to the audience in a little sketch in which T. Austin Gavin, a prominent young Tulsa attorney, acts as prime minister.

Oil men from every State in the Union are in Tulsa for the exposition and representatives of England, Canada, France, Germany, Egypt and the South and Central American countries are delegates to the Petroleum Congress. On the opening day Joe O'Brien, a veteran production man for the Standard Oil Company of New Jersey in the Rumanian oil fields, rubbed shoulders with Rudolph Gross, a contractor from California and Dr. Emil Ott, a Swiss geologist; Andrew Pellessier, who knows more about how they mine for oil in Alsace, France, than any man on the grounds, outlined the system to Forest Dorn, a Pennsylvanian, whose company operates in the Bradford and Allegany fields, and who looks forward to the day when the sands in those fields may be subjected to the mining process. Alfred Wirth, the German manufacturer of oil well drilling tools and supplies hobnobbed with representatives of the great American houses that have been manufacturing supplies for many years. Young Egyptian students of the American system of producing and refining oil were made acquainted with young Argentinans who are in this country on a like mission. Hundreds of reunions were staged as men from different parts of the country met after perhaps years of separation. It was altogether a scene of animation and good feeling. The crowd had not yet got down to the serious business which brought it there.

The Industry's Greatness

Nothing has been presented that has shown so plainly and so convincingly the immensity of the petroleum industry as the enormous number and variety of exhibits at this year's exposition.

It is not surprising that men in no way connected with the oil business should stand in awe at the size of the show, or that they should express wonder that so many things are necessary in the work of getting out the world's needs of petroleum, for their amusement has been little less than that of men who have been years in one or another branch of the industry. It is a great object lesson to both classes. This show, with its several million dollars worth of varied exhibits, every one of which is more or less essential to the modern conduct of the oil business, must increase any man's respect for the industry, the development of which has made such an infinite variety of equipment necessary.

The 2½-mile walk through aisles and grounds necessary to be taken if one is to see everything shown on the 7½ acres of exposition ground is rewarded by the sight of thousands of items of supplies, and it is safe to say that no one visiting the show was previously familiar with all of them. Hundreds of men who have been making a study of the exhibits in the past few days have seen many things which to them were new and untried, but which challenged their attention.

The Whole Story of Oil

The whole story of oil is unfolded to all who care to learn it. A man may begin at the booths of the United States Geological Survey in the Scientific and Tehnical Building and go all the way up the line to the distribution of gasoline at the filling station, and he need miss nothing. At the exhibit of the Geological Survey he may learn how the industry starts its search for oil. He can see the geologist on his first survey testing out territory which he may later condemn as unworthy of consideration or which he may decide is worth leasing for future protection and possible exploration. The attendants at the Survey booths will show him many things connected with the science of geology and paleontology as applied to the oil business, which have supplanted old hit and miss methods of earlier years.

Then the inquirer can see in other parts of the grounds the actual operation of drilling for oil by the several means used in America and Europe, with the latest methods demonstrated in every one of these exhibition wells. Cable and rotary tools can be seen actually making hole and a close-up view is afforded in each case. A dozen or more miniature drilling and pumping outfits are on display in different buildings in each of which every part is reduced to uniform scale.

In the Scientific and Technical Building the visitor can see a miniature reproduction of a modern gasoline absorption plant for the extraction of gasoline from natural gas, exhibited by the Association of Natural Gasoline Manufacturers, while the United States Bureau of Mines has an exhibit showing a small but actually operating fractionating tower built after the latest study and experiments of the experts of that Government department. Across the plaza, in the California Building, the whole story of oil from the drilling of the well to the delivery of the refined products to customers is shown in each of its many stages, bringing in the part producer, pipe line, refinery, rail transportation, storage and filling station plays in the business. Samples of crude oil from many States and countries and samples of all the products of a complete refinery are other educational exhibits the visitor may view with profit as well as pleasure.

With the lessons learned from these displays the visitor may then turn to the multitude of supplies used in the business extending to lease houses, wire fences, and fire proofing, and even to devices for lifting a standard truck out of the deep mud of a new and badly rutted oil country road. Nothing is missing in this tremendous display. Things are shown that have not yet found their way into the exhibitor's catalogue.

Benefits to Both

The benefit of this exposition to the exhibitor is the results he will get out of his personal contact with the users of oil supplies and the good the oil man gets out of it is in his opportunity to study and ask questions concerning the exhibits in which he may become interested.

The writer took pains to observe individual cases in accompanying different oil men through one or another of the buildings. It was interesting to note the reaction when a booth was reached that exhibited a line in which the visitor was particularly interested. There the oil man anchored himself and it might be for ten minutes or for two hours. The exhibitor had a prospect he was eager to convince and who was willing to be shown, seeing which his companion attached himself to another oil acquaintance, only to have the same thing repeated at a booth showing an entirely different line than the first and so it continued. Every oil man visiting the exposition has his individual industrial problems and he is there to try to solve them. Eastern operators seek more economical methods of extracting the small production remaining in the sand. With nothing but steady depletion to look forward to their problem is one of reducing the lifting cost per barrel. They are looking for ways and means to do it and are finding it at the exposition. One of the busiest operators in Pennsylvania told The Oil and Gas Journal that the first day at the exposition taught him several important things he did not know before and made him a purchaser of equipment heretofore unfamiliar to him. His only regret was that many other oil men operating in his field were blind to the immense importance to themselves of this wonderful exposition of the latest products of the inventive genius of the supply industry.

Mid-Continent operators, up against the necessity of drilling to depths never dreamed of five years ago, find at the exposition that the manufacturers of oil well supplies have successfully met the deep drilling problem.

The present graded system of buying oil has made it necessary for producers to maintain at the highest degree possible the gravity of their crude and the steel tank industry has met this with many varieties of vapor-proof tanks which pay for them-

(Continued on Page 223)

Little Change in Refinery Crude Runs

Oklahoma Only Area in Mid-Continent to Show Increase in Operations. Runs Now 90,900 Barrels Greater Than a Year Ago

By C. O. Willson

Mid-Continent refiners — Oklahoma, North and Central Texas, Kansas, Arkansas and North Louisiana—on October 1, were running to stills 90,900 bbls. more crude oil than on October 1, 1923. Despite this large increase over last year, the refiners were running 700 bbls. less than on September 1 of this year.

It will be recalled that on October 1 of last year refinery operations in the Mid-Continent were at the low point of 1923. Refiners at that time were only running 256,525 bbls. daily to stills, there having been practically a steady decline in operations ever since the first of the year when the same refiners were running to stills 344,377 bbls. daily. This represented a difference of 87,825 bbls. daily between the high and low figures for the year.

Although market conditions this year from the standpoint of the Mid-Continent refiner have been as unfavorable as last, refinery operations during 1924 have shown less variation. On January 1 of this year the operations had partially recovered from the low operating period of the latter half of 1923 and were running to stills 303,225 bbls. daily on January 1. By February 1, these runs had increased to 334,325 bbls. daily and operations have not varied more than 20,000 bbls. daily since.

Daily Runs Since January 1

Following is a table giving the daily runs since January 1:

	Number of plants operating	Crude to stills Barrels
January 1	116	303,225
February 1	127	334,325
March 1	131	348,685
April 1	129	355,690
May 1	115	324,415
June 1	118	330,365
July 1	120	344,250
August 1	119	332,900
September 1	119	348,125
October 1	122	347,425

Larger Plants Increase Runs

One interesting feature of the contrast in refinery operations this year and last lies in the fact that while the total runs to stills in the Mid-Continent were greater by 90,900 bbls. daily, only 122 plants were operating on October 1 this year as against 127 plants October 1, 1923. This is indicative of the trend which has been pointed out in previous monthly reports. It is due to the "weeding" out of several of the smaller plants and the increased runs of a few of the larger companies. These larger companies have not only been able to survive the unfavorable market conditions of the past two years but they have in many instances increased the capacity of their plants and ar at the present time running nearer capacity than the smaller concerns.

There were several changes in operations during the past month. But the increased runs in a few plants were offset by decreases in others so there was only 700 bbls. difference in September 1 and October 1 reports. This situation obtained despite the two reductions in Mid-Continent posted crude schedules during the month of September. These lower crude prices no doubt account for the increased runs of several plants but the danger of this trend has been discounted by refiners who are endeavoring to conserve their crude supplies in the expectation of higher prices later this year and next. It has been predicted that several of the small skimming plants which have been shut down from a few months to several years, would start up due to the lower crude prices. Up to the present time, however, this development has only materialized in three instances and their crude runs to still are of little importance.

Oklahoma was the only area in which refinery runs on October 1 were greater than on September 1. The total 3,500-bbl. increase is more than accounted for in the 4,000-bbl. increase in the runs of Cosden & Co. at West Tulsa. This plant was running 17,000 bbls. on September 1 but this was soon increased to 20,000, the plant operating status at the present time.

Among the other plants which increased their runs slightly were the Cameron Refining Co. at Ardmore, Garber Refining Co. at Garber, Cushing Refining and Gasoline Co. at Blackwell and Cushing and Pure Oil Co. The total runs of the three plants of the latter company on October 1 were 8,300 bbls. daily and 7,600 bbls. on September 1. The increased runs of the two plants of the Cushing Refining & Gasoline Co. were temporary. The two most important reductions were those of the Tidal Refining Co. and the Globe Oil & Refining Co. The runs of the former company's plant at Drumright were reduced from 5,600 to 3,000 bbls. daily and the latter at Blackwell from 4,500 to 3,400 bbls.

During the past month the skimming plant of the Lawton Refining Co. at Lawton, after a long shut down, resumed operations. This plant was owned by J. R. Travis and A. E. Senter. It has been taken over by several oil men located in that section. W. B. McBee of the producing firm of Fowler & McBee, is vice-president and general manager of the company. The plant is operated with Duncan Field crude. Another small plant to start up during the month was that of the Yale Asphalt Co. at Yale, Okla. The plant is being operated on an asphalt base crude primarily to secure road oil.

North and Central Texas

In North and Central Texas the small plant of the Paris Refining Co. has been shut down temporarily. The Magnolia Petroleum Co. has reduced its Corsicana plant's runs from 3,800 to 2,100 bbls. The Panhandle Refining Co. has reduced the runs of its Wichita Falls plant from 5,000 to 3,400 bbls.

At Greenville, the National Refining Co. of Texas with headquarters in Dallas is now operating the plant formerly known as the North Texas Oil & Refining Co. This plant had previously been shut down for several years. The new operators are buying crude in tank car lots from Archer County and Luling Fields. The company has announced its intention of building a lub plant. The new concern is not connected with the National Refining Co. which operates a refinery at Coffeyville, Kans., and is one of the larger independent distributors of refined products in several States.

Kansas

In Kansas, several companies increased their crude runs to stills. Among this number were the Derby Oil & Refining Co. at Wichita and the Moore Refining Co. at Arkansas City. The increases were offset by decreases. The Roxana Petroleum Corp. has reduced the runs of its Arkansas City plant from 12,000 to 9,000 bbls. daily and the National Refining Co. reduced the operations of its Coffeyville plant from 5,800 bbls. to 4,900 bbls.

Arkansas-North Louisiana

There were no changes of special importance in the operations of North Louisiana and Arkansas plants. The Cross Refining Co. increased its runs 500 bbls. at Smackover and Ouachita Valley Refining Co. plant at El Dorado is now shut down. In North Louisiana the Caddo Central Oil & Refining Co. is running 7,000 bbls. of crude daily to the stills of their two plants instead of 8,000 bbls., the runs on September 1.

MID-CONTINENT REFINERY OPERATIONS

TABLE NO. 1

Based on plants which have been in operation during the past year.

	No. of Plants	Capacities	Plants Op. Oct. 1, '24	Dy. Runs Oct. 1, '24
Oklahoma	59	256,700	50	162,500
North Central Texas	44	163,250	36	86,000
*Kansas	28	128,300	21	68,975
North Louisiana	6	33,500	6	26,100
Arkansas	15	39,950	9	13,850
Totals	152	621,700	122	347,425

*Includes three Missouri plants.

TABLE NO. 2

Based on operations of all plants as of September 1, 1924, and October 1, 1924. (Capacities includes all plants regardless of how long they have been shut down).

	No. of Plants	Capacities	Plants Op. Oct. 1, '24	Dy. Runs Oct. 1, '24	Plants Op. Sep. 1, '24	Dy. Runs Sep. 1, '24	Dy. Dec. Oct. 1, '24
Oklahoma	103	354,100	50	152,500	47	149,000	*3,500
North Central Texas	73	237,350	36	86,000	36	88,650	2,650
†Kansas	39	138,100	21	68,975	21	69,075	100
North Louisiana	17	46,580	6	26,100	6	27,300	1,200
Arkansas	16	41,700	9	13,850	9	14,100	250
Total	248	816,830	122	347,425	119	348,125	700

—*Increase. †Includes four Missouri plants.

TABLE NO. 3

Based on operations of all plants as of October 1, 1924, and October 1, 1923.

	No. Plants Oct. 1, '23	Capacity	Plants Op. Oct. 1, '23	Daily runs Oct. 1, '23	Daily Dec. Comp'd to Oct. 1, '24
Oklahoma	109	368,500	56	130,100	32,400
North Central Texas	67	216,650	37	55,950	31,050
*Kansas	42	130,900	19	39,250	29,725
North Louisiana	20	48,950	11	15,550	10,550
Arkansas	18	36,160	4	15,700	*1,850
Total	256	801,260	127	256,525	90,900

†Increase. *Includes four Missouri plants.

REFINERY OPERATIONS IN OKLAHOMA

(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs Oct. 1	Runs Sept. 1
Allied Refining Co., Okmulgee	1,800	850	700
Anderson-Prichard, Cyril	1,200	850	750
Barnsdall Refining Co., Barnsdall	3,500	4,600	4,700
Bolene Refining Co., Enid	5,000	4,100	4,100
Cameron Refining Co., Ardmore	4,000	3,500	3,000
Canfield Refining Co., Yale	500	50	100
Champlin Refining Co., Enid	16,000	12,000	12,000
Chestnut & Smith Corp., Sand Springs	5,000	Shut down	Shut down
Coleman-Nelson Corp., West Tulsa	2,000	Shut down	Shut down
Cosden & Co., West Tulsa	35,000	20,000	17,000
Cushing Refining & Gasoline Co., Cushing	2,500	2,500	1,000
Cushing Refining & Gasoline Co., Blackwell	1,500	1,500	1,000
Daisy Bell Petroleum Co., Wilson	2,000	100	100
Empire Refineries, Inc., Cushing	7,000	5,300	5,250
Empire Refineries, Inc., Okmulgee	2,500	2,500	2,500
Empire Refineries, Inc., Ponca City	6,000	5,500	6,500
Garber Refining Co. (Omar)	3,000	2,200	1,700
Globe Oil & Refining Co., Blackwell	5,000	3,400	4,500
Hewitt Refining Co., Hewitt	1,800	700	650
Illinois Oil Co., Cushing	2,500	1,400	1,400
Imperial Refining Co., Ardmore	6,000	4,700	4,500
Johnson Oil Refining Co., Cleveland	4,000	2,500	2,800
Lawton Refining Co., Lawton	1,000	500	Shut down
Lorraine Refining Co., Bristow	4,000	2,000	2,000
Marland Refining Co., Ponca City	15,000	12,300	12,000
Nyanza Refining Co., Wilson	3,500	650	1,000
Oil State Refining Co., Enid	2,000	950	850
Oil State Refining Co., Allen	600	Shut down	Shut down
Okla.-Tex. Ref. Co. (Sagamore), Grandfield	2,000	2,000	2,000
Phillips Co. (Waite), Okmulgee	6,000	5,000	5,000
Peppers Gasoline Co., Covington	1,000	500	400
Pierce Oil Corp., Sand Springs	10,000	Shut down	Shut down
Producers & Refiners Corp., West Tulsa	7,000	4,200	4,500
Producers & Refiners Corp., Blackwell	3,000	1,000	1,000
Producers & Refiners Corp. (Polar) Sapulpa	2,000	Shut down	Shut down
Pure Oil Co., Ardmore	6,500	2,100	2,000
Pure Oil Co., Cushing	5,000	4,200	3,600
Pure Oil Co., Muskogee (O. P. & R. Co.)	2,500	2,000	2,000
Riley Petroleum Co., Bristow	800	400	300
Rock Island Ref. & Pipe Line Co., Duncan	2,000	2,000	2,000
Roland Oil Co., Bristow	1,500	1,000	700
Sapulpa Refining Co., Sapulpa	7,000	Shut down	Shut down
Shaffer Oil & Refining Co., Cushing	8,000	6,000	5,800
Superior Oil Corp., Grandfield	3,000	Shut down	Shut down
Sun Co., Yale	3,000	2,000	2,000
Sinclair Refining Co., Cushing	6,000	1,500	2,500
Sinclair Refining Co., Muskogee	1,000	700	700
The Texas Co., West Tulsa	8,000	9,250	9,250
Texas Pacific Coal & Oil Co., Wynnewood	2,500	1,400	1,200
Tidal Refining Co., Drumright	5,000	3,000	5,600
Transcontinental Oil Co., Boynton	2,500	1,500	1,800
Transcontinental Oil Co., Bristow	5,000	4,500	4,500
Tonkawa Petroleum Co., Tonkawa	2,500	750	650
Turley Ref. Co. (formerly Home Pet. Co.) ,O. C.	2,500	Shut down	Shut down
Union Oil & Refining Co., Grandfield	2,000	Shut down	Shut down
Whaleback Production Co., Oklahoma City	1,500	250	400
Western Oil Corp., Beckett	1,500	1,000	1,000
Yale Oil Corp., Yale	1,500	1,250	900
Yale Asphalt Co., Yale	1,000	250	Shut down
Total	256,700	152,500	149,000

REFINERY OPERATIONS IN NORTH-CENTRAL TEXAS

(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs Oct. 1	Runs Sept. 1
American Oil Corp., Pioneer	2,000	Shut down	Shut down
American Refining Co., Wichita Falls	7,000	4,950	5,100
Boner, H. E., Burkburnett	500	Shut down	Shut down
Boardman Oil Co., Wichita Falls	750	100	150
Buffalo Refining Co., Sherman	500	250	200
Clayton Oil & Refining Co., Dallas	4,500	3,200	3,700
Cross (H. H.) Refining Co., Corsicana	2,500	900	900
De Leon Refining & Pipe Line Co., De Leon	1,000	150	200
Griswold Oil Co., Wichita Falls	3,000	2,500	2,300
Gulf Refining Co., Fort Worth	15,000	6,200	6,200
Humble Oil & Refining Co., Burkburnett	1,500	2,000	1,400
Humble Oil & Refining Co., Hearne	10,000	9,000	9,000
Interstate Gasoline Products Co., Iowa Park	2,000	Shut down	Shut down
Iowa Park Prod. & Ref. Co., Iowa Park	1,500	1,300	1,300
Lone Star Refining Co., Wichita Falls	4,000	Shut down	Shut down
Miller Petroleum Co. Wichita Falls	3,000	1,700	2,100

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Dull Week in Oklahoma Refined Market

Straight Run Gasolines and Kerosene Firm with Lower Prices for Natural Gasolines. Fuel and Gas Oils Prices Slightly Lower

By C. O. Willson

The fact that the International Petroleum Exposition and Congress has been in session since October 2 in Tulsa is held largely accountable for a dull week in the Group 3 (Oklahoma) refined market. The usual market activity was conspicuous by its absence as soon as the Exposition and Congress opened and it is not expected that trading will be normal until after it closes the latter part of the week.

Many jobbers of the Middle West who buy their supplies from this section have availed themselves of the opportunity to attend the exposition for one or more days and at the same time consult with refiners regarding the coming year's business. Refiners from other areas have also been in Tulsa and small groups have been able to discuss present market conditions and the probable trend over the next few months. As previously stated, few sales resulted from these meetings but it is possible that greater activity later will develop.

Straight run gasolines occupy practically the same position they did last week. The U. S. Motor (58-60) gasoline was selling at 6½ to 6¾ cents a week ago and still is. During the week there were days in which there were indications of either strength and weakness but so far as prices were concerned there were no changes.

Natural Gasoline Lower

Natural gasoline prices are ¼ to ½ cent lower than they were a week ago and many of the trade believe the long predicted slump in price for all grades is now under way. The price weakness however seems to be largely confined to a few concerns who by selling ahead in expectation of lower prices are practically forcing declines in the spot market, a situation especially true of Grade C. So far as the market for immediate delivery is concerned it cannot be said that large quantities are being offered to the buyers.

As was the case a week ago, both fuel and gas oils are offered more freely and prices are slightly lower. Sales of the lower gravity fuel oils have been made under 90 cents in a few instances and 24-26 has been selling as low as 90 cents both for immediate shipment and delivery over the remainder of the month. The same situation applies to gas oil. At least two refiners in Oklahoma have sold large quantities of gas oil for delivery in the Middle West at 2¾ cents. The cheaper fuel and gas oils were not so conspicuous beginning the first of this week. The refiners who were willing to sell at the lower prices had apparently been taken care of and the other sales managers were demanding higher prices.

There were only minor changes in the remaining products. Refiners were firm in their prices for kerosene and distillates with no apparent change in the demand.

Export Inquiry

Reverting to the gasoline situation the main topic of discussion among the trade during the past week was the probable trend of prices over the remainder of the year. There have been inquiries in the market both from domestic and export buyers seeking 58-60, (U. S. Motor) and 64-66, 375 for delivery up to January 1. One exporter is said to have made inquiry for several hundred cars divided in equal monthly shipments between now and the first of the year. So far as known no definite offer was made although it is understood the buyer's idea of price was in line with the present spot market. In the domestic end the buyers were also seeking a flat price over the balance of the year. One of these buyers was a jobber whose marginal contract has expired and he is desirous of waiting until the first of the year before making a decision as to a renewal. The domestic buyers also apparently believe the present spot prices are high enough for this business and some are seeking still lower quotations.

It was not possible during the past week to determine what the general attitude of the refiners of this group will be toward these offers. Several are not optimistic as to the price trend over the balance of the year but even they are not inclined to speculate through the sale of a substantial part of their output for future delivery. Others believe the bottom in prices has been reached and any changes between now and January 1 will be advances. Refiners with this view will obviously not look with favor on any of the offers now in the market.

Bureau of Mines Report

The August report of the Bureau of Mines carried in full elsewhere in this issue was generally encouraging to the sellers. Although a large reduction in gasoline stocks is to be expected in August, the main gasoline consuming month of the year, the 159,902,356-gallon reduction was greater than many had expected and the record consumption accounts for the strength shown in the refined gasoline market during the month which in the case of Group 3 brought an advance in prices ranging from 1 to 1½ cents.

Data for the first eight months show that the total gasoline production up to September 1 was 5,983,231,290 gallons, representing a 15.3 per cent increase over the 5,099,301,966-gallon production for the first eight months of 1923. These production figures include imports as well as domestic production. For the first eight months of this year the total consumption including exports was 5,751,476,923 gallons a 16.6 per cent increase over the 4,929,099,085 figure for the first eight months of 1923.

Although the 1,311,020,845 gallons of gasoline in storage on September 1 may still be considered excessive, it is also true that August very materially aided in bettering the statistical position of the industry considered strictly from the standpoint of refinery gasoline supplies.

Increase in Consumption

Despite all the pessimistic predictions regarding gasoline consumption over the remainder of the fall and winter months, generally based on the assumption that weather conditions will be especially unfavorable, the Government reports for the first eight months showing the 16.6 per cent increase previously mentioned, assures that the market is to be aided for the next few months by substantial increases in consumption over the corresponding period of last year. It is this constantly increasing consumption which in previous years has quickly brought the gasoline market out of periods of depression and many close students of market developments for a period of years cannot see any fundamental difference in the present situation so far as gasoline is concerned. In this connection these market observers point to the fact that crude production is declining and although there may be temporary increases due to some new flush production in Oklahoma, the market does not face another Powell and Long Beach peak production as it did last year at this time.

Refiners are stressing these and other favorable features in the present gasoline situation with the view of discounting some of the bearish predictions which are being made in certain quarters and which if generally credited by the sellers will result in further price declines. The more optimistic refiners do not look for or desire any speedy price recovery in the gasoline, but they believe that all the unfavorable factors of a fundamental character which developed during the past six months in the oil business have already been reflected in the refinery gasoline market.

The Bureau of Mines report for August covering kerosene and fuel and gas oils is also interesting when considered with the price advances which took place during that month. The 26.5 per cent increase in demand for kerosene over July explains the price advance in that product. There was also a 5.5 per cent increase in fuel oil and gas oil consumption over July but production made a still greater increase and as a result stocks September 1 total 1,658,670,000 gallons, the highest on record. Those who have considered the report during the past week point to these record stocks as significant. They do not consider the stocks as necessarily excessive provided the demand over the fall and winter months is as large as has been predicted. If the demand proves disappointing, they believe the heavy stocks will assume lower prices.

Gasoline and Naphtha

One of the best indications of strength in the gasoline market during the past week lay in the fact that the large tank wagon reductions in several territories centering in the Eastern and Southeastern States were not reflected in lower refinery prices in Oklahoma. Although the refiners in Oklahoma dispose of the bulk of their output in territories not affected by the general tank wagon reductions, it caused some uneasiness with predictions that the reductions would spread to other sections, but this feeling was not general enough to be a market factor. A comparison of tank wagon prices at the present time and the past points of the year for points east of the Rocky Mountains will show that the general reductions are now approximately the same for all areas. The reductions made during the past week therefore simply brought those sections in line with the Middle West.

There were a few sales of U. S. Motor 58-60) during the past week for delivery over the month at 6½ cents. This really represents ¼-cent increase over the previous week for this class of business as several sales were made then or later in September at 6¼ cents for October delivery. Several refiners also stated they were getting 6¾ cents for spot shipments direct to jobbers.

The only export business known to have been placed during the week was a 1,500,000-gallon purchase of 58-60 by the Carson Petroleum Co. It is understood some of this business was offered Oklahoma plants. The order was placed with the North Texas concerns where cheaper gasoline was available. The buying of the higher gravity gasolines was confined to small orders in the domestic market.

Kerosene and Distillates

Jobbers who visited Tulsa in connection with the Exposition during the past week were more interested in distillates than gasolines, according to refiners. The fall deliveries to consumers got under way in satisfactory volume in September and several jobbers were seeking both spot and contract purchases. Kerosene has been more freely offered since the first of the week but there have been no changes in price.

Natural Gasolines and Blends

There was considerable difference of opinion within the trade as to prices on natural gasolines. A few sales at very low prices were reported. An investigation as to these sales showed they were usually for delivery over the month and do not for that reason represent the present spot market. Several manufacturers fear declines later in the month and to secure a substantial order for delivery over the next 30 days have given price concessions ¼ to ½ cent under the present spot market. Spot prices however are lower than last week with the principal weakness in Grade C which declined ½ cent.

Blenders are asking 7 cents up for the higher gravity blends. These prices being above the straight run quotations

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REFINED MARKET BAROMETER

Reductions in tank wagon and service station prices during the past week applying to an area which consumes approximately one-third of the gasoline consumed in the United States were not reflected in a general lowering of refinery prices. Gasoline prices in Pennsylvania were reduced slightly following the reduction in eastern tank wagon prices and on the west coast export prices are lower but outside of these areas there have been only scattered changes in refinery quotations during the past week. Weakness was apparent in kerosene, fuel oils and gas oils in some sections but the general market is firm with a heavy movement of both products. Distillates are in strong demand in all sections. Neutrals are weak and lower prices are expected. Other lubricating materials are unchanged.

Mid-Continent—The demand for straight run gasolines was strong enough to hold the market fairly firm with scattered advances about offsetting the declines. Natural gasolines weakened in all areas from ¼ to ¾ cents. Fuel oil and gas oil prices were lowered slightly in Oklahoma but are unchanged in other areas. Kerosenes and distillate prices are firm with strong demand. Price cutting was prevalent in neutrals and lower prices are expected at least for the lighter viscosities.

Atlantic Seaboard—The general reductions in tank wagon prices featured market. Refinery gasoline prices are unchanged. Kerosene, lubricants and fuel oils firm. Industrial demand for lubricants strong but motor demand has fallen off. Bulk export movement of kerosene, fuel oil and gas oil heavy.

California—Gasoline market irregular with lower prices for export. Absorption gasoline grades fractionally higher. Tidewater prices on fuel oil unchanged but domestic quotations are lower. Other products unchanged.

Pennsylvania—Gasoline prices lower following tank wagon reductions. Kerosenes weak. Fuel oil strong. No change in other products.

Gulf Coast—Neutrals prices generally firm with fractonal advances in a few grades. Good demand for cold test oils. Good movement of gas and fuel oils with prices unchanged.

Chicago—Further reduction expected in Standard Oil Company of Indiana tank wagon. More fuel and gas oil available. Strong demand for kerosenes and distillates.

Favor Show in Tulsa Every Three Years

Leading Supply Men Feel Interests of Industry and Exposition Will be Better Served With Longer Interval Between Exhibits

Leading representatives of oil and gas well supply companies and manufacturers of oil field equipment, at a meeting in Tulsa Tuesday evening, decided that an exposition of the nature of the International Petroleum Exposition now being held in Tulsa should not be held oftener than once in three years. This decision was embodied in a resolution adopted unanimously which stated these exhibitors would not take part in any similar exposition held elsewhere than in Tulsa and that the next exposition should be held in Tulsa in 1927.

Sentiment at the meeting seemed to be unanimous that the main purpose of the exposition was to show and demonstrate improvements in oil field devices, supplies and equipment and that more than one year's time would be necessary in developing substantial and interesting improvements in present tools, machinery and equipment. It was felt unless new features were shown at each exposition, interest in the show would die out and it would be but a short time until the exposition would fail to attract the attention it deserves.

The exhibitors voted the 1924 Exposition a remarkable success. They declared Tulsa was the logical place to hold such an exposition and the sentiment of all those present at the meeting, they including the biggest men in the oil well supply business in the country, was expressed in the following resolution which was adopted unanimously and signed by all the men attending the meeting:

THE RESOLUTION ADOPTED

A meeting held in the City of Tulsa, Okla., on the 7th day of October, 1924, of representatives of oil and gas well supply companies having exhibits at the 1924 Petroleum Exposition.

Meeting called to order by John A. Geismar, who was chosen chairman, and Walter Gray, who was chosen secretary.

The chairman brought before the meeting for its consideration the question of frequency with which Petroleum Expositions are to be held in the future, stating that he had learned that plans were now being made for a similar exposition to be held in 1925. He stated he would like to have an expression from the representatives of the supply companies present, whether they favored a yearly exposition or one less frequently. During the discussion that followed, the consensus of opinion expressed was that the 1924 Exposition had been remarkably successful, due largely to the fact that many improvements in machinery and supplies of all kinds were upon exhibition; that more than a year's time would be necessary in bringing out other substantial and interesting improvements.

WHEREUPON, the following resolution was unanimously adopted:

RESOLVED, that we, the representatives of oil and gas well supply companies and manufacturers of oil field equipment, having exhibits at the 1924 Petroleum Exposition are unanimous in the belief that Tulsa, Okla. is the logical point for an exposition of this kind and that we have agreed not to participate in a similar exposition held at any other point.

WE ARE FURTHER AGREED that an exposition of this nature should not be held oftener than once in three years and that the next exposition should be held in the City of Tulsa, Okla., in the year 1927.

WE FURTHER SUGGEST that this association be given five (5) memberships on the governing body of said exposition, such memberships to be selected by this association.

BE IT FURTHER RESOLVED, that a copy of these minutes be signed by representatives of all members of this association and that the secretary be instructed to send a copy thereof to the Secretary of the International Petroleum Exposition and Congress with the request that he present them at the first meeting of the Board of Directors of the Congress.

Organization Perfected

John A. Geismar, vice president and general manager of the National Supply Co. was chosen permanent chairman of the organization perfected at the meeting Tuesday, and Walter Gray of the Jarecki Manufacturing Co. of Tulsa was elected secretary. It was decided that all supply and equipment men and all exhibitors at the International Petroleum Exposition should be invited to join the organization. All are asked to get in touch with Mr. Gray and express their sentiments on the decision reached to hold the exposition just once in three years and, if favorable, to sign the resolution adopted.

Feeling that the exposition really depended upon the supply men who exhibited their products, the meeting decided the organization should be more fully represented on the governing board of the exposition and the following men were selected for election to that board: John A. Geismar, D. J. Brown, vice president in charge of sales of the Oil Well Supply Co.; R. S. Haseltine, vice president and general manager of the Guiberson Corp., Dallas, Texas; Walter Gray of the Jarecki Manufacturing Co., Tulsa; and William K. Hughes, vice president of the Continental Supply Co.

The main question confronting the supply and equipment men and considered at the meeting was whether there would be enough improvements made in equipment, machinery and tools during the next year to justify holding the exposition within a year. It was decided unanimously such would not be the case and that the interests of the oil industry and of the exposition demanded that a longer interval obtain between the holding of the big show. There was no question in the minds of those at the meeting but that the exposition is a big success. It was to prevent any lessening in the interest displayed in it and to keep it on the high level it has reached that the decision was made to hold the exposition just once in three years. It was the consensus of opinion that an exposition every year would react against its entire purpose and that new devices and methods used in the oil fields should be the principal feature at such an exposition. It was said that the holding of the show every year would absolutely kill the purpose for which it was intended.

The five men selected at the meeting to represent the supply men on the governing board of the exposition management will meet with the directors of the exposition and endeavor to arrive at a satisfactory arrangement regarding the holding of the exposition at the time decided upon at the meeting.

Seek a Conference Thursday

The Board of Directors of the International Petroleum Exposition met Wednesday afternoon but the resolutions adopted at the meeting of exhibitors on Tuesday evening were not presented to the meeting. The action of Tuesday evening was brought up by one of the board and it was decided to seek a conference between the board and representatives of the exhibitors to be held, if possible, Thursday afternoon. The board, with the exception of one member, who favors a bi-ennial show, is in favor of an annual exposition.

VALVE INFORMATION

The Columbus Machine Co., of Columbus, Ohio, tells about the new Hytest forged steel solid wedge gate valves for high temperature, and high pressure refinery service in an attractive booklet published recently. The company claims to have the only forged steel solid wedge gate valve on the market. The general specifications and dimensions of these valves are given in a series of tables, together with chemical and physical analysis of the steel used in making the finished product. Heavy duty forged steel drilling valves, valves for line pipe work and special valves for refineries are among those described.

REGISTERING AT THE EXPOSITION GROUNDS

Thousands of oil men from every producing area of the world visited The Oil and Gas Journal's booth at the International Petroleum Exposition and registered, receiving a book of tickets to be deposited at different booths on the grounds, the exhibitors offering prizes which are to be awarded to those holding the lucky numbers which are to be drawn from the tickets deposited at the various booths.

Attorneys General Hear Truth on Oil

Visitors to Mid-Continent Field Pleased With Opportunity Afforded to Learn Facts About Business at First Hand

By Ralph T. Baker

The frank and open reception at the hands of Oklahoma oil men, their courtesy and accuracy in presenting the facts of the petroleum industry, the enormous hazards in the production of petroleum and the necessity for big concerns, well financed, were brought out during the past week when four attorneys general and a representative of the United States Department of Justice were the guests of Attorney General George F. Short on a tour of the Oklahoma oil fields. The climax of the trip came on Saturday, October 4, when the attorneys general were the guests of the Mid-Continent Oil & Gas Association, the Western Petroleum Refiners Association of Natural Gasoline Manufacturers at a banquet given at the Tulsa Country Club following a visit to the International Petroleum Exposition and Congress.

D. W. Moffitt, vice president of Cosden & Co., summed up the case for the oil industry when he reviewed the facts which had been brought forcibly to the attorneys general during their trip. The visitors expressed their thanks for the opportunity given them to see the oil industry as the oil men see it. A change in the attitude of the attorneys general toward the oil industry was noticed during the trip by those who accompanied them.

Shown Real Facts

"I feel that we have shown the real facts of the oil business to the visitors," was the expression of Attorney General Short, following the banquet. "They cannot avoid the facts that were presented by the producers and refiners whom we visited."

The attorneys general expressed their appreciation of the opportunity to learn the salient features of the oil business at first hand. They remarked concerning the courtesy of Attorney General Short and the oil men in all parts of the State. It was evident that the facts of the oil business had not failed to make an impression on men whose only interest had been in the purchase of gasoline.

"We don't want the government to fix the prices for petroleum products," declared Herman L. Ekern, attorney general for the State of Wisconsin. "We don't want to leave the matter of prices to any arbitrary agency. We want the elimination of the conditions that would interfere with the natural causes that would fix prices."

The hazards in the production of petroleum, its individual characteristics as a commodity, the dangers in government control and the present distressing conditions were brought out forcibly by Mr. Moffitt. "If we were to cut out the old settled crude production the price of oil would jump to $5 per barrel over night," he declared. This old settled production forms 50 per cent of our crude supply and comes from wells averaging 4.2 barrels each. One third of the oil used comes from wells which make only 2.4 barrels each.

"You cannot cut the price of crude oil low enough to curtail flush production without stifling the settled production, which is the backbone of the oil business. The old settled production is the staple product of the industry; it goes on year after year. The flush production is purely temporary. Is it any wonder then that the great purchasing agencies consider the settled production and its value to the industry in settling prices for crude oil. It would be a national catastrophe for this settled production to be destroyed."

Mr. Moffitt prefaced his remarks with the assertion that the attorneys general had been extremely frank in their remarks and that the information which they desired was given without reserve. He showed that the oil industry was not like other industries, but that peculiar circumstances make a distinct difference between it and other industries.

"The law of supply and demand works just as surely in the oil business as in any other," he declared. "There are, however, certain fundamental differences which mark it with a distinct identity. The agricultural industry and the oil industry are alike in that their raw materials both come from the earth. Here, however, the difference begins. The products of the farm are eternal, but the products of the oil business are wasting; they are only temporary.

"Because of the permanent character of the farm products, we can set a determined value on them. But oil and the production of oil is not assured in the future. It has a limited life. Facilities cannot be built to assure a constant supply and as a result no determined value can be set on petroleum or petroleum products.

"As a result of the wasting character of petroleum it has been necessary to furnish great central storage plants. The smaller units cannot render the service. There must be great units able to move great quantities on short notice. For this purpose, enormous capital is required.

"Oil production is not certain. The risk is enormous. If a dry hole is obtained, the investment is worthless. A small well makes it nearly so. If a large well is obtained, the investment may pay out. You attorneys general saw an area where one of the major companies spent over half a million dollars trying to find oil. It is not alone the smaller concerns that miss the pay formations, but the larger ones spend their money fruitlessly at times.

"The present system of pipe lines and central storage plants grew out of the necessities of the oil business. The individual oil operator is not financed to store his own oil or run it to some large central storage plant. This feature does not come by accident or design on the part of the big companies, but it is derived from the necessities of the business. The fact that these pipe line companies must be large and far reaching and have immense capacity makes it impossible there should be many of them.

Result of Necessity

"When the public raises the question of the price of gasoline, it finds that the crude oil is in the hands of the big agencies. The public thinks this is the result of manipulation, but in reality it is the result of necessity of the business.

"The oil business is laboring under the shadow of a menacing power. Uninformed people are always willing and ready to misconstrue statements concerning this industry. The problem of the oil business is not merely a problem for the oil men alone, it is a problem for the entire nation.

"A stalwart number of oil men have in half a century developed our petroleum resources beyond the immagination of any man, and they have made it serve more human needs than any other industry at less cost than any other. There are crooks in every business, and we in the oil industry are not trying to shield those in our business. The oil industry as an industry is not crooked. It has given a marvelous value."

Touching upon the national necessity for continuous and adequate production of oil Mr. Moffitt said "the nation that is unable to fill its oil requirements in the time of war is like a child in the hands of an armoured warrior."

The speaker continued with his presentation of the facts concerning the oil business showing that the oil industry as a whole had received only a fair profit. He presented the fact that in many places gasoline was being delivered at a cost less than that of production, refining and delivery. He showed that many companies were writing losses in their books and intimated that many more would do so when the reports for the present year were made public. "We're not robbing you," he told the attorneys general.

"Three major difficulties face the independent refiner," Mr. Moffitt declared. "The first is a lack of capital, which is shown in a lack of storage and facilities for doing business and which results in the first foundation for a premium. The next is his credit. The independent refiner cannot always assure the producer of ready payment, and another foundation is laid for a premium. In the third place, the independent refiner, to assure constant operation must contract with the producer for a certain amount of production over a certain period of time. These difficulties come to a head in times of stress, when the refiners are forced to close their plants or sell their products at less than cost.

Distress Gasoline

"As a result many independent refiners sell their gasoline at a cost less than production charges. When they cut prices, the larger concerns are forced to meet the prices. How can you ask the Standard Oil to maintain a uniform price all over its territory? The efforts of refiners in the past have been directed toward making a staple product, a uniform quality of gasoline. When we sell a staple product it is necessary to meet competing prices. The Standard Oil has a right legally to protect its rights. The independents have been cutting prices below cost. The Standard Oil must meet these prices locally or close its plant. If it maintained a higher price it would lose all the business.

"The Standard today is doing business at cost. Several Standard refineries have closed their plants and are buying their gasoline from independents at a cost less than the cost of manufacture. Unless conditions change, the refining industry is headed for the rocks.

"There are only two remedies that I can suggest. First, repeal the leaws and give the industry a chance to get together in a conference so that they may assist the various branches in solving their specific problems. This, however, is not possible. On the other hand is Government control. This remedy would not be impracticable if the Governmental agencies would assume the position of umpire or arbiter. But if the umpire sends the pitcher to the bench and attempts to pitch the game himself, chaos will result. He must see that the players play fair and stick to the rules. Both remedies, however, are impossible and we must bide our time and wait, hoping for the failure of wild-cat operations and a slump in production or the miraculous increase in consumption of refined products so that the surplus now on hands may be cared for."

Obtain New Angle

Mr. Ekern, in response to the address of welcome by J. Burr Gibbons, president of the Tulsa Chamber of Commerce, thanked the oil men for the information which they had made available and for the courteous treatment which had been given them. He expressed appreciation of the efforts of Attorney General Short in making possible a trip which proved so beneficial.

"There is a great waste in the distribution of gasoline in Wisconsin," Mr. Ekern asserted. "The industry has been overloaded with unnecessary filling stations and unnecessary equipment. Service charges are unfair to the business. There are too many filling stations.

"We have learned that the producers have some peculiar problems which are unknown to the people of Wisconsin. Those are your problems. We, however, are interested in having the oil last as long as possible and in getting our gasoline as cheaply as possible and none of us wants the Government to fix prices."

Those who were guests of Attorney General Short at the banquet were Attorney General Ekern, Andrew B. Dougherty, attorney general of Michigan, and J. E. Kelleher, of the United States Department of Justice. Clifford L. Hilton, attorney general of Minnesota, was unable to attend the banquet because of illness and John Fletcher, attorney general of Iowa, who had been on the trip was compelled to return to his home Saturday morning.

Automobile Output 3,700,000 Cars, '24

Increase Only 9 per cent Below Record of Previous Year. More Cars Being Scrapped Each Year. Saturation Far Off

By L. M. Fanning

It is estimated that the automobile industry will produce this year about 3,700,000 cars and trucks. This compares 4,086,997 produced in 1923, reported bythe National Automobile Chamber of Commerce, the figures including motor vehicles of United States design made in Canada. Production in 1923 made a new high record and represented an increase of 53 per cent over the preceding year.

The estimated production for this year represents a decline from manufacturing estimates made early in the year. Automotive manufacturers had mapped out schedules which would have brought production up to from 4,500,000 to 5,000,000 cars, but spring buying fell below expectations and the industry wisely cut down on its output program. As it is, while 1924 production will run about 9 per cent under the preceding year, it will be the next best year in the history of the industry so far as output is concerned. Falling only 387,000 cars short of the 1924 record, it will represent a gain of more than 1,000,000 cars manufactured over 1922.

Production and Registration

The following figures compiled by the National Automobile Chamber of Commerce and including 1924 estimates, show production and registration of motor vehicles since 1895:

	Production	Pct. Gain	Registration	Pct. Gain
1895	300	...	300	...
1896	600	100	900	200
1897	1,200	100	2,100	133
1898	2,400	100	4,600	119
1899	3,874	61	8,624	87.5
1900	5,000	29	13,824	60
1901	7,000	40	20,590	49
1902	9,000	23.5	28,755	39.6
1903	11,000	22	38,083	32.5
1904	21,975	100	57,864	52
1905	25,000	13.8	77,988	34.5
1906	34,000	36	106,928	37
1907	44,000	29.5	142,061	33
1908	65,000	47.6	197,479	39
1909	130,986	100	311,197	57.5
1910	187,000	43	468,497	50
1911	210,000	12.3	639,514	36.4
1912	378,000	82	944,000	47.8
1913	485,000	28.1	1,258,062	33
1914	569,054	17.5	1,711,339	36
1915	892,618	56.7	2,445,666	43
1916	1,583,617	77	3,512,996	43.6
1917	1,868,949	18	4,983,340	42
1918	1,153,638	—38	6,146,617	23
1919	1,974,016	71	7,565,446	23
1920	2,205,197	11.5	9,231,941	22
1921	1,661,550	—24.6	10,463,295	13
1922	2,659,064	60	12,238,376	17
1923	4,086,997	53	16,092,177	23
*1924	3,700,000			

*Estimated.
Note: Production figures include motor vehicles of U. S. design made in Cada.

Of the estimated output of 3,700,000 motor vehicles in 1924, it is indicated that there will be about 3,323,000 passenger cars and 377,000 trucks. This compares with 3,694,237 passenger cars and 392,760 trucks made in 1923, showing a slight loss for both classes of vehicles.

Production by Months

Monthly figures on the production of motor cars and trucks issued by the Department of Commerce, show production of passenger cars for the eight months ended August amounting to 2,285,814 against 3,442 800 for the same period of 1923; and 244,373 trucks against 261,741 for the same period last year. The monthly figures compare as follows:

Passenger Cars

	1924	1923	1922
January	287,353	223,822	81,696
February	336,371	254,782	109,171
March	348,056	319,789	152,962
April	337,045	344,661	197,224
May	279,463	350,460	232,462
June	217,943	337,402	263,053
July	237,668	297,371	225,103
August	241,631	314,431	249,498
September	.....	298,928	187,711
October	.....	335,023	217,582
November	.....	284,923	215,362
December	.....	275,439	208,016
Total	.....	3,637,031	2,339,840

Trucks

	1924	1923	1922
January	28,925	19,732	9,596
February	31,156	22,173	13,360
March	34,118	35,284	20,036
April	36,158	38,085	22,665
May	33,412	43,730	24,120
June	27,874	41,173	26,354
July	26,235	30,692	22,083
August	27,484	30,872	24,711
September	.....	28,578	19,495
October	.....	30,139	21,824
November	.....	28,070	21,949
December	.....	27,762	20,394
Total	.....	377,290	246,587

Note: Totals for 12 months are not identical with yearly figures given, due to the latter including vehicles of U. S. design made in Canada.

Note: Totals for 12 months are not identical with yearly figures given due to the latter including vehicles of United States design made in Canada.

Fords 55 Per Cent

An interesting phase of motor vehicle production this year is the continued gain being made by the Ford Motor Company. That the "flivver" is more than justifying its reputation of being the oil man's best friend is shown by the fact that the Ford Motor Company will probably close the first nine months of 1924 with an output of cars and trucks in the domestic plants about 18,000 units greater than during the corresponding period of 1923. Any appreciable gain in the fourth quarter means that the company has a fair prospect of equaling its record production of 1,915,485 domestic units attained in 1923.

Output of cars and trucks by the Ford company last year amounted to about 50 per cent of the production of all companies. Domestic production of the Ford plants for the eight months through August of this year was 1,263,024 against 1,233,684 in the first eight months of 1923 and with a schedule of 153,000 cars and trucks for September, the indicated nine months total for 1924 is 1,416,024 against 1,398,432 for the first nine months of 1923. Ford production for first eight months of 1924 amounts to 55 per cent of the total production of all cars and trucks.

The 1924 record of production for the automotive industry again reveals that the saturation point is still in the distance. Additions to the number of cars on the road are made each year, with the number of cars scrapped increasing at the same time.

Proportion Scrapped

The National Automobile Chamber of Commerce gives the following figures showing the number of motor vehicles going into the domestic market annually, and the number of motor vehicles scrapped:

	Vehicles Going Into Domestic Market Annually	Cumulative Number Put Into Dom. Use	Total Vehicles Scrapped to Date	Vehicles Scrapped Annually
1913	454,837	1,534,265	276,203	146,775
1914	537,279	2,071,544	360,205	84,002
1915	823,643	2,895,187	449,521	89,003
1916	1,486,920	4,382,107	869,111	419,590
1917	1,779,026	6,161,133	1,177,793	308,682
1918	1,098,020	7,259,153	1,112,536	*85,257
1919	1,877,223	9,136,376	1,570,930	458,394
1920	1,940,333	11,076,709	1,844,763	273,832
1921	1,557,732	12,634,441	2,171,146	326,378
1922	2,483,309	15,117,750	2,879,375	708,229
1923	3,864,328	18,982,078	3,889,901	1,010,526

*Number of vehicles put into use again after having been scrapped in the preceding year.
Note: The total of motor vehicles scrapped during a given year is only part of the replacement market. Replacements depend on supplying the gar caused by scrapping of motor vehicles and supplying new vehicles to owners who can sell their used cars.

Prospective Owners

Basing its figures upon income statistics, the National Automobile Chamber of Commerce estimates that there are more prospective automobile owners in the United States than there are motor cars registered. The number of motor car owners at the end of 1923 was 13,464,000, not including motor truck owners. The number of persons gainfully employed in the United States, according to the 1920 census, is 41,614,248. The number of income receivers in different classifications as estimated by the National Bureau of Economic Research shows about 13,500,000 persons receiving an income of over $1,500 a year. Assuming that the motor car owners are mainly in the higher brackets, the entire field of those receiving under $1,500 yearly is still unsupplied with motor transportation.

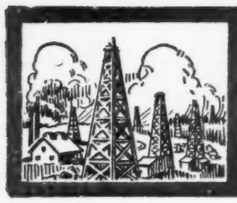
"While it cannot be assumed," the chamber says, "that all of the 28,150,000 gainfully employed non-owners of automobiles are prospects, yet it must be remembered that the rate of incomes of these persons is not fixed. Millions of them are young people who will move up into the higher brackets.

"It is important to bear in mind that the growth in the motor vehicle market depends on the ability of the lower income brackets to purchase used cars, not necessarily new cars. The ability of these groups, for instance, to purchase millions of used cars at $200 each, would have a similar effect to that if they purchased new vehicles, for the purchase of the used product enables the owner of it to buy a new automobile.

"In general, the process is not selling brand new cars to first-time owners, but of pouring in at the top with the used cars being traded in and going into a secondary market. High-class used cars are, of course, in competition with new vehicles of similar price. Automobiles are not owned wholly within the income groups of $1,450 per year up. Many in the lesser ranges own cars, and many in the higher groups do not, but a general parallelism may be assumed."

PRINCESSES AT INTERNATIONAL PETROLEUM EXPOSITION

Left to right—Miss Arkansas, Miss Wyoming, Miss Montana, Miss Ohio, Indian Princess, Miss Louisiana, Miss Colorado, Miss Kansas, Miss Texas, Miss Kentucky, Miss Oklahoma, Miss Pennsylvania, and Miss West Virginia.



REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

CHICAGO DIST. (Based on Group 3)—	Oct. 7		Sept. 30		Sept. 23	
50-52 450 end point (Naphtha)	.06¼	.06½	.06¼	.06½	.06½	.06¾
56-58 450 end point	.06¼	.06½	.06¼	.06½	.06½	.06¾
58-60 437 end point (U. S. Motor)	.06½	.06¾	.06½	.06¾	.06¾	.07
60-62 400 end point	.08¼	.08½	.08½	.08¾	.08½	.08¾
64-66 375 end point	.09	.09¼	.09	.09¼	.09¼	.09½
68-70 360 end point	.10	.10¼	.10	.10¼	.10¼	.10½
OKLAHOMA (Group 3)—						
50-52 450 end point (Naphtha)	.06¼	.06½	.06¼	.06½	.06¼	.06½
56-58 450 end point	.06¼	.06½	.06¼	.06½	.06¼	.06½
58-60 437 end point (U. S. Motor)	.06½	.06¾	.06½	.06¾	.06½	.06¾
60-62 400 end point	.08	.08¼	.08	.08½	.08¼	.08½
64-66 375 end point	.09	.09¼	.09	.09¼	.09	.09¼
68-70 350 end point	.10	.10¼	.10	.10¼	.10	.10¼
KANSAS—						
58-60 437 end point (U. S. Motor)	.06½	.07	.06½	.07	.06¾	.07¼
NORTH TEXAS—						
48-52 450 end point (Naphtha)	.06	.06¼	.06¼	.06½	.06¼	.06½
50-52 440 end point (Naphtha)	.06¼	.06½	.06¼	.06½	.06¼	.06½
56-58 450 end point	.06½	.06¼	.06¼	.06½	.06¼	.06½
58-60 437 end point (U. S. Motor)	.06⅜	.06⅝	.06½	.06¾	.06½	.06¾
60-62 400 end point	.08		.08	.08¼	.08	.08¼
64-66 390 end point	.08½	.08¾	.08½	.08¾	.08½	.08¾
64-66 375 end point	.08¾	.09	.08½	.09	.08¾	.09
68-70 360 end point	.09¾	.10	.10	.10¼	.09¾	.10¼
NORTH LOUISIANA—						
56-58 450 end point	.06½	.06¾	.06¾	.07	.07	.07¼
58-60 437 end point (U. S. Motor)	.06¾	.07	.06¾	.07	.07	.07½
60-62 400 end point	.08½	.08¾	.08½	.08¾	.08¼	.08½
64-66 390 end point	.09	.09¼	.09	.09¼	.09	.09½
64-66 375 end point	.09¼	.09½	.09¼	.09½	.09¼	.09½
ARKANSAS—						
58-60 450 end point	.06¾	.07	.06¾	.07	.06¾	.07
58-60 437 end point (U. S. Motor)	.07	.07¼	.07	.07¼	.07	.07¼
64-66 375 end point	.09¼	.09½	.09¼	.09½	.09	.09½
ROCKY MOUNTAIN STATES—						
*58-60 437 end point (U. S. Motor)	.09¾	.10¼	.10	.10¼	.10	.10½
PENNSYLVANIA—						
52 Naphtha	.10¼		.10½		.11	
54 Naphtha	.10¼		.10½		.11	
56 Gasoline	.10¼		.10½		.11	
58 Gasoline	.10½		.10¾		.11¼	
60 Gasoline	.11¼		.11½		.12	
62 Gasoline	.11¾		.12½		.13	
64 Gasoline	.13¼		.13½		.14	
66 Gasoline	.15½		.15½		.15½	
68-70 Gasoline	.17¼		.17¼		.17¼	
CALIFORNIA—						
54-56 437 end point (U. S. Motor) domestic	.11	.12	.11	.12	.11	.12

*Colorado points.

NATURAL GASOLINE

CHICAGO DIST. (Based on Group 3)—	Oct. 7		Sept. 30		Sept. 23	
{ Grade Double A, 80-87.9 375 e.p., rec. 90%	.08¼	.08½	.08½	.08¾		
{ Grade A, 72-79.9, 375 end point, rec. 90%	.08¼	.08½	.08½	.08¾	.08¾	.09
{ Grade Double B, 84-92, 375 e.p., rec. 85%	.08		.08½	.08¾		
{ Grade B, 76-83.9, 375 end point, rec. 85%	.08		.08½	.08¾	.08½	.08¾
Grade C, 80-90, 375 end point, rec. 78%	.07¾	.08	.08¼	.08½	.08¼	.08½
OKLAHOMA (Group 3)—						
{ Grade Double A, 80-87.9, 375 e.p., rec. 90%	.08	.08¼	.08¼	.08¾		
{ Grade A, 72-79.9, 375 end point, rec. 90%	.08	.08¼	.08½	.08¾	.08¾	
{ Grade Double B, 84-92, 375 e.p., rec. 85%	.07¾	.08	.08½			
{ Grade B, 76-83.9, 375 end point, rec. 85%	.07¾	.08	.08½		.08½	.08¾
Grade C, 80-90, 375 end point, rec. 78%	.07½	.07¾	.08¼	.08½	.08½	.08¾
NORTH TEXAS—						
{ Grade Double A, 80-87.9, 375 e.p., rec. 90%	.08	.08¼	.08½	.08¾		
{ Grade A, 72-79.9, 375 end point, rec. 90%	.08	.08¼	.08½	.08¾	.08½	.08¾
{ Grade Double B, 84-92, 375 e.p., rec. 85%	.07¾		.08¼	.08½		
{ Grade B, 76-83.9, 375 end point, rec. 85%	.07¾		.08¼	.08½	.08½	.08¾
Grade C, 80-90, 375 end point, rec. 78%	.07½	.07¾	.08¼	.08½	.08¼	.08½
NORTH LOUISIANA—						
Grade B, 72-78, under 375 e.p., rec. 90%	.08¼	.08½	.08½	.08¾	.08¾	.09
Grade C, 76-82, 375 end point, rec. 85%	.08	.08¼	.08¼	.08½	.08¾	.09
CALIFORNIA—						
68-80 absorption, 380-410 end point	.10¼	.11	.10	.10½	.10	.10½
78-84 compression, 350 end point	.13		.13		.13	

MOTOR NATURAL GASOLINE (BLEND)

CHICAGO DIST. (Based on Group 3)—	Oct. 7		Sept. 30		Sept. 23	
58-62 437 end point	.07	.07¼	.07¼	.07½	.07	
60-62 450 end point	.07	.07¼	.07¼	.07½	.07	
64-66 450 end point	.07	.07¼	.07¼	.07½	.07	
OKLAHOMA (Group 3)—						
60-62 450 end point	.06½	.06¾	.06½	.07	.06½	.07
64-66 437 end point	.07	.07¼	.06½	.07	.06½	.07
68-70 430-435 end point	.07	.07½	.06½	.07	.06½	.07
NORTH TEXAS—						
58-62 440 end point	.06½	.06¾	.06½	.06¾	.06½	.06¾
58-60 450 end point	.06½	.06¾	.06½	.06¾	.06½	.06¾
PENNSYLVANIA—						
*60-62	.11		.11		.11½	
*64-66	.11		.11		.11½	
*66-68	.11		.11		.11½	
*68-70	.11		.11		.11½	

*At Sistersville, W. Va.

BURNING OIL

CHICAGO DIST. (Based on Group 3)—	Oct. 7		Sept. 30		Sept. 23	
41-43 water white Kerosene	.04⅞	.05⅛	.04⅝	.04⅞	.04¾	.05
42-44 water white Kerosene	.05⅛	.05¼	.04⅞	.05	.05	.05¼
NORTH LOUISIANA—						
41-43 prime white Kerosene	.05		.05		.05	
42-44 water white Kerosene	.05¼	.05⅜	.05⅛	.05¼	.05⅛	.05
KANSAS—						
41-43 water white Kerosene	.05	.05⅛	.05	.05⅛	.04⅞	.05
ROCKY MOUNTAIN STATES—						
*40-42 water white Kerosene	.08¼	.08½	.08¼		.08¼	
NORTH TEXAS—						
41-43 water white Kerosene	.04⅝	.04¾	.04⅝	.04¾	.04⅝	.04
41-43 prime white Kerosene	.04⅝	.04½	.04⅝	.04½	.04⅝	.04
40-42 prime white Kerosene	.04⅝	.04½	.04⅝	.04½	.04⅝	.04
42-44 prime white Kerosene	.04¾	.05	.04¾	.05	.04¾	.05
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04⅝	.04⅞	.04⅝	.04⅞	.04⅝	.04
42-44 water white Kerosene	.04⅞	.05⅛	.04⅞	.05⅛	.04⅞	.05
41-43 prime white Kerosene	.04½	.04⅝	.04½	.04⅝	.04½	.04
ARKANSAS—						
41-43 water white Kerosene	.04⅞	.05	.04⅞	.05	.04⅞	.05
42-44 water white Kerosene	.05	.05¼	.05	.05¼	.05	.05
PENNSYLVANIA—						
43 Kerosene prime white	.07½		.07½		.07½	
45 Kerosene water white	.07½		.07½		.07½	
46 Kerosene water white	.07¾		.07¾		.07¾	
47 Kerosene water white	.08		.08		.08	
34 Neutral	.09		.09		.09	
34 Sundebloomed Neutral	.07¾		.07¾		.07¾	
36 Miners' Neutral	.06½		.06½		.06½	
300 Mineral Seal	.07½		.07½		.07½	
CALIFORNIA—						
40-42 water white (high burning test)	.07½	.08	.07½	.08	.07½	.08
Engine distillate, 43-45 445 end point	.08½	.09	.08½	.09	.08½	.09
Engine distillate, 42-44 480 end point	.07½	.07¾	.07½	.07¾	.07½	.07

*Colorado points.

FUEL OILS

CHICAGO DIST. (Based on Group 3)—	Oct. 7		Sept. 30		Sept. 23	
24-26 Fuel Oil (sellers' cars, Group 3)	.90	.95	.95	1.00	.95	
22-24 (El Dorado)	.90	.95	.95	1.00	.95	1.00
18-20 (Smackover)	.90	.95	.92½	.97½	.85	.90
32-36 Gas Oil	.02¾	.03	.03	.03⅛	.03	.03
38-40 Straw distillate	.03¾	.04	.03⅝	.03⅞	.03¾	.04
KANSAS—						
24-26 Fuel Oil	1.05	1.10	1.00		1.00	1.05
32-36 Gas Oil	.03¼	.03¼	.03⅛	.03¼	.03⅛	.03
38-40 Distillate	.03⅝	.03¾	.03⅝	.03¾	.03⅝	.03
OKLAHOMA (Group 3)—						
22-26 Fuel Oil (sellers' cars)	.90		.90	.95	.90	.95
24-26 Fuel Oil (buyers' cars)	.87½	.92½	.90	.95	.90	.95
24-26 Fuel Oil (sellers' cars)	.90	.95	.92½	.95	.95	
28-30 Fuel Oil (sellers' cars)	1.00	1.05	1.00	1.05	1.00	1.05
32-36 Gas Oil	.02¾	.03	.02⅞	.03	.03	.03
38-40 Straw distillate	.03⅝	.03¾	.03⅝	.03¾	.03⅝	.03
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	.92½	.97½	.90	.95	.90	.95
26-30 Fuel Oil	1.05		1.00	1.05	.95	1.00
32-36 Gas Oil	.02¾	.03	.02⅞	.03	.02⅞	.03
36-38 Gas Oil	.03¼		.03¼		.03¼	
38-40 Straw distillate	.03½	.03⅝	.03½	.03⅝	.03½	.03
NORTH LOUISIANA—						
20-22 Fuel Oil	.95	1.00	.95		.95	
32-36 Gas Oil	.03⅛	.03¼	.03⅛	.03¼	.03⅛	.03
36-40 Light Straw distillate	.03⅝	.03¾	.03⅝	.03¾	.03⅝	.03
ARKANSAS—						
38-40 Distillate	.03¾	.04	.03¾		.03¾	.03
32-36 Gas Oil	.03	.03¼	.03¼	.03½	.03¼	.03
22-26 Refinery Fuel Oil	.95	1.00	.95	1.00	.95	1.00
GULF COAST (South Texas)—						
Gas Oil	.03¾	.04	.03¾	.04	.03¾	.04
Fuel Oil	1.50	1.60	1.50	1.60	1.50	1.60
PENNSYLVANIA—						
30-34 Fuel Oil	.05		.05		.05	
36-40 Fuel Oil	.05¼		.05¼		.05¼	
CALIFORNIA—						
33-36 Distillate	.04	.04½	.04	.04½	.04	.04
27-33 Distillate	.03¾	.04	.03¾	.04	.03¾	.04
15-20 Fuel Oil (at tide water)	1.40		1.40		1.40	

NEUTRAL OILS

OKLAHOMA (Group 3)—	Oct. 7		Sept. 30		Sept. 23	
70-80 vis., 2½ color, 20-25 cold test	.04	.04½	.04	.04½	.04	.04
100 vis., 2 color, 20-25 cold test	.05	.05½	.05	.05½	.05	.05
100 vis., 3 color, 20-25 cold test	.04½	.05	.04½	.05	.04½	.05
150 vis., 3 color, 20-25 cold test	.08	.09	.08	.09	.08	.09
150 vis., 4 color, 20-25 cold test	.08	.08½	.08	.08½	.08	.08
180 vis., 4 color, 23-28 cold test	.09	.09½	.09	.09½	.09	.09
180 vis., 3 color, 23-28 cold test	.09½	.10	.09½	.10	.09½	.10
200 vis., 3 color, 23-28 cold test	.11½	.12	.11½	.12	.11½	.12
200 vis., 4 color, 23-28 cold test	.11	.11½	.11	.11½	.11	.11
220 vis., 3 color, 25-30 cold test	.12½	.13	.12½	.13	.12½	.13
220 vis., 4 color, 25-30 cold test	.11¾	.12¼	.11¾	.12¼	.11¾	.12
240 vis., 3 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15
240 vis., 4 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14
280 vis., 3 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
280 vis., 4 color, 25-30 cold test	.15½	.16	.15½	.16	.15½	.16
Red Neutrals:						
180 vis., 5 color, 23-28 cold test	.08½	.09	.08½	.09	.08½	.09
180 vis., 6 color, 23-28 cold test	.12¼	.12¾	.12¼	.12¾	.12¼	.12
200 vis., 5 color, 23-28 cold test	.10½	.11	.10½	.11	.10½	.11
200 vis., 6 color, 23-28 cold test	.13	.13½	.13	.13½	.13	.13
220 vis., 5 color, 25-30 cold test	.11	.11½	.11	.11½	.11	.11
220 vis., 6 color, 25-30 cold test	.14¼	.14¾	.14¼	.14¾	.14¼	.14
240 vis., 5 color, 25-30 cold test	.13	.13½	.13	.13½	.13	.13
240 vis., 6 color, 25-30 cold test	.15¼	.15¾	.15¼	.15¾	.15¼	.15
280 vis., 5 color, 25-30 cold test	.14¼	.15	.14¼	.15	.14½	.15

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

180-200 vis., S. R. green, 40-45 cold test...	.07	.07½	.07	.07½	.07	.07½
190-200 dark green, 40-45 cold test	.06	.06½	.06	.06½	.06	.06½
170-190 dark green, 40-45 cold test	.05¾	.06	.05¾	.06	.05¾	.06
600, E filtered	.20	.21	.20	.22	.20	.21
590-600 Bright Stock, 150-160 vis.	.28	.29	.28	.29	.28	.29
600-610 Bright Stock, 190-210 vis.	.32	.34	.32	.34	.32	.34
Waxes:						
124-126 White Crude Scale Wax	.05¼	.05½	.05¼	.05½	.05⅜	.05½
PENNSYLVANIA—						
150, 3 color	.16½		.16½		.16½	
180, 3 color	.18½		.18½		.18½	
200, 3 color	.20½		.20½		.20½	
220, 3 color	.22½		.22½		.22½	
600, steam refined	.19		.19		.19	
635, steam refined	.23		.23		.23	
650, steam refined	.24½		.24½		.24½	
600, Pennsylvania flash	.28		.28		.28	
630, Pennsylvania flash	.33		.33		.33	
*550, E filtered	.19¼		.19¼		.19¼	
*600, E filtered	.23½		.23½		.23½	
600, E filtered	.21½		.21½		.21½	
600, D filtered	.28		.28		.28	
550, E filtered	.20		.20		.20	
550, D filtered	.24		.24		.24	
Pennsylvania Bright Stock	.35		.35		.35	
†122-124 White Crude Scale Wax	.05¾		.05¾		.05¾	
*122-124 White Crude Scale Wax	.05⅞		.05⅞		.05⅞	

*At Warren, Pa. †At New York City.

GULF COAST (South Texas)—						
Zero Black	.06	.07	.06	.07	.06	.07
No. 2 color, 100 vis., pale oil	.08	.09	.08	.09	.08	.09
No. 2 color, 150 vis., pale oil	.10	.11	.10	.11	.10	.11
No. 3 color, 200 vis., pale oil	.12	.13	.12	.13	.12	.13
No. 3 color, 300 vis., pale oil	.14½	.15½	.14½	.15½	.14½	.15½
No. 3½ color, 500 vis., pale oil	.16½	.17½	.16½	.17½	.16½	.17½
No. 3½ color, 750 vis., pale oil	.22	.23	.22	.23	.22	.23
No. 4½ color, 1200 vis., pale oil	.24	.25	.24	.25	.24	.25
No. 4½ color, 2000 vis., pale oil	.29	.30	.29	.30	.29	.30
No. 1½ color, 150 vis., pale filtered	.21	.22	.21	.22	.21	.22
No. 2 color, 200 vis., pale filtered	.22	.23	.22	.23	.22	.23
No. 3 color, 300 vis., pale filtered	.25	.26	.25	.26	.25	.26
No. 3½ color, 500 vis., pale filtered	.30	.31	.30	.31	.30	.31
No. 3½ color, 750 vis., filtered	.40	.41	.40	.41	.40	.41
No. 5 to 6 color, 200 vis., red oil	.10	.11	.10	.11	.10	.11
No. 5 to 6 color, 300 vis., red oil	.13	.14	.13	.14	.13	.14
No. 5 to 6 color, 500 vis., red oil	.14½	.15½	.14½	.15½	.14½	.15½
No. 5 to 6 color, 750 vis., red oil	.19	.20	.19	.20	.19	.20
CALIFORNIA—						
200 vis., 2½-3 color	.15	.17	.15	.17	.15	.17
300 vis., 2 -4 color	.16	.19	.16	.19	.16	.19
350 vis., 3½-4 color	.17½	.20	.17½	.20	.17½	.20
400 vis., 4 -4½ color	.19	.20	.19	.20	.19	.20
Red Neutrals:						
200 vis., 4½-5 color	.13	.14	.13	.14	.13	.14
300 vis., 5 -6 color	.14	.17	.14	.17	.14	.17
400 vis., 5 -6 color	.16	.18	.16	.18	.16	.18
500 vis., 6 -6½ color	.17	.18	.17	.18	.17	.18
600 vis., 9½ plus	.18	.21	.18	.21	.18	.21

Note: Bright stocks are not manufactured commercially on the Pacific Coast

NEW YORK DOMESTIC MARKET

	Oct. 7	Sept. 30	Sept. 23
Motor Gasoline:			
Spot Gasoline, Bayonne	.10¾	.10¾	.10¾
V. M. P. Naphtha, in steel barrels	.15	.15	.16
Lubricating Oil (Industrial) at refinery, Bayonne, N. J.:			
Cylinder, extra light filtered, in barrels	.44½	.44½	.44½
Cylinder, light filtered, in barrels	.38½	.38½	.38½
Cylinder, Bright Stock	.48½	.48½	.48½
Cylinder, steam refined (600)	.30½	.30½	.30½
Black, in bulk	.12	.12	.12
Bloomless, white, 30-31 gravity, 170 vis.	.44	.44	.44
Bloomless, 885 specific gravity	.16½	.16½	.16½
Red Paraffin:			
170 viscosity	.22	.22	.22
212 viscosity	.23	.23	.23
265 viscosity	.24	.24	.24
295 viscosity	.26	.26	.26
Paraffin, 903 specific gravity	.31	.31	.31
*Fuel Oil:			
Bunker Oil, 14 plus:			
August 30 to October 4, 1.75.			
Diesel Oil, at refinery, gallon	.05	.05	.05
Furnace Oil, tank wagon, gallon	.10	.10	.10
Gas Oil, delivered in New York	.06	.06	.06
Wax, fully refined:			
120-122 a.m.p.	.05⅝	.05⅝	.05⅝
125-127 a.m.p.	.06	.06	.06
130-132 a.m.p.	.06½	.06½	.06½
135-137 a.m.p.	.07¾	.07¾	.07¾

*Lighterage, 6.5c a barrel extra.

NEW YORK EXPORT PRICES

	Oct. 7	Sept. 30	Sept. 23
Motor Gasoline, in cases, gallon	.26 14	.26 14	.26.14
Motor Gasoline, U. S. Navy, spec. gallon	.12.25	.12.25	.12.25
Naphtha, 60° F., 59-61 spec. grav.	.13.25	.13.25	.13.25
Naphtha, 60° F., 63-66 spec. grav.	.14.5	.14.5	.14 5
Naphtha, 60° F., 66-68 Spec. grav.	.16.0	.16.0	.16.0
Kerosene:			
Standard white, in bulk	.06½	.06½	.06½
Standard white, in barrels, gallon	.13½	.13½	.13½
Standard white, in cases, gallon	.16.9	.16.9	.16 9
Water white, in cases, gallon	.07½	.07½	.07½
Water white, in barrels, gallon	.14½	.14½	.14½
Water white, in cases, gallon	.17.9	.17.9	.17.9

LOS ANGELES EXPORT PRICES

	Oct. 7		Sept. 30		Sept. 23	
Kerosene:						
Water white	.05	.05½	.05	.05½	.05	.05½
U. S. Motor gasoline, 54-56, 437 end point	.09	.10	.09½	.10½	.09½	.10½

CRUDE OIL PRICES

October 1.—The Paragon Development Co. reduced three grades of Western Kentucky crudes 10 cents.

October 2.—Joseph Seep Purchasing Agency reduced Corning crudes 15 cents.

October 4.—Magnolia Petroleum Co. adopted the Prairie Oil & Gas Co. prices for Oklahoma, North Texas and Kansas for crude below 33 degrees gravity. No change was made in its schedule above 33 degrees gravity.

October 6.—Standard Oil Co. of Louisiana adopted a two-gravity schedule for Smackover, Ark. crude.

October 8.—Standard Oil Co. of Louisiana reduced El Dorado, Ark. crudes 10 cents.

Arkansas and North Louisiana

Caddo, 38° and above	$1.35
35° to 37.9°	1.25
32° to 34.9°	1.15
Below 32°	1.00
Homer, 35° and above	1.10
33° to 34.9°	1.00
31° to 32.9°	.90
Below 31	.75
Haynesville, 33° and above	1.00
Below 33°	.95
El Dorado, 33° and above	1.00
Below 33°	.90
Bull Bayou, 38° and above	1.15
35° to 37.9°	1.00
32° to 34.9°	.85
Cotton Valley	.80
De Soto	1.20
Crichton	1.00
Bellevue	1.10
Smackover, 26° and above	.95
Below 24°	.85
*Stephens, Ark.:	
26° and above	.90
Below 26°	.70

*Posted by Atlantic Oil Producing Co.

Wyoming and Montana

Rock Creek (Wyo.)	$ .95
Salt Creek	.85
Big Muddy	.75
Mule Creek	.60
Grass Creek (light)	1.20
Elk Basin	1.20
Lance Creek	1.15
Osage	1.15
Cat Creek (Mont.)	1.20
Sunburst (Mont.)	.90
Lost Soldier	.78
Greybull and Torchlight	1.15
Hamilton Dome	.80

Lander based on contracts covering entire production of fields.

Oklahoma, Kansas, North and Central Texas

Prairie Oil & Gas Co. and other major purchasing companies, except as noted

Below 30°	$ .75
30° to 32.9°	.90
33° to 35.9°	1.10
36° and above	1.25
Magnolia Petroleum Co.:	
33° and above	1.25
Corsicana Light	1.25
Corsicana Heavy	.90
Mexia	1.25
Powell	1.25
Thrall	1.00

*Below 33° gravity, same as Prairie.

Humble Oil & Refining Co.

Ranger:	
Below 30°	$ .90
30° to 32.9°	1.10
33° to 35.9°	1.25
36° and above	1.35
Mexia	1.25
Powell	1.25
Currie	1.25
Richland	1.25

*Wichita-Archer Counties and Moran, same as Prairie.

Gulf Coast

Grade "A"	$1.25
Grade "B"	1.05
Luling	.90
Laredo (Magnolia Petroleum Co.)	.75
Rockdale-Minerva (Milam County)	1.25
Calliham (Live Oak-McMullen)	1.53
*High Island	.85

*Posted by Sun Co.

***Somerset**

Under 28° gravity	$ .90
28° to 30.9°	1.00
31° to 32.9°	1.10
33° and above	1.25

*Posted by Grayburg Oil Co.

California

14° to 14.9°	$1.00
20° to 20.9°	1.01
21° to 21.9°	1.02
22° to 22.9°	1.03
23° to 23.9°	1.05
24° to 24.9°	1.07
25° to 25.9°	1.10
26° to 26.9°	1.13
27° to 27.9°	1.16
28° to 28.9°	1.19
29° to 29.9°	1.22
30° to 30.9°	1.25
31° to 31.9°	1.28
32° to 32.9°	1.31
33° to 33.9°	1.34
34° to 34.9°	1.37
35° to 35.9°	1.40
36° to 36.9°	1.46
37° to 37.9°	1.52
38° to 38.9°	1.58
39° to 39.9°	1.64
40° to 40.9°	1.70
41° to 41.9°	1.76
42° and above	1.82

Eastern States

Penna Grade Oil in New York Transit Lines	$2.85
Bradford District Oil in National Transit Lines	2.85
Penna Grade Oil in National Transit Lines	2.75
Penna Grade Oil in Southwest Pa. Pipe Line Lines	2.75
Penna Grade Oil in Eureka Pipe Line Lines	2.75
Penna Grade Oil in Buckeye Pipe Line Lines	2.75
Cabell Grade Oil in Eureka Pipe Line Lines	1.45
Corning Grade Oil in Buckeye Pipe Line Lines	1.50
Somerset Medium Oil in Cumberland Pipe Line Lines	1.55
Somerset Light Oil in Cumberland Pipe Line Lines	1.70
Rarland Grade Oil in Cumberland Pipe Line Lines	.90
Lima	1.58
Wooster	1.40
Illinois	1.37
Indiana	1.38
Princeton	1.37
Plymouth	.75
Waterloo	.75
†Oil Springs, Canada	2.30
†Petrolia, Canada	2.23
*Western Kentucky, 36° and above	1.20
*Western Kentucky, 33° to 35.9°	1.10
*Western Kentuck, 32.9° and below	1.00
Cumberland and Monroe Counties, (Ky.) (Paragon Dev. Co.)	1.70

†Plus Government bounty of 26½c.

*Prices for Warren, Allen, Hancock, and Ohio Counties by Indian Refining Co. Prices for Warren and Simpson Counties by Paragon Development Co. are 10 cents higher.

Mexican Crude

*Tuxpam (f.o.b. Mexican ports)	$1.15
†Panuco (f.o.b. Mexican ports)	.95
Tuxpam (New York)	1.72
Panuco (New York)	1.38

*Plus 32.33c. †Plus 17.64c tax. Prices based on contracts.

Visualizes Industry's Achievement

Internationl Petroleum Exposition Impressive Demonstration of Progress That Has Made Over Modern Civilization

By Charles E. Bowles

The International Petroleum Exposition is more than the mere display of $1,000,000 worth of equipment, materials and supplies used by the oil industry—or of the uses of petroleum's products by other industries.

The first impression of the Exposition is a blur of derricks, engines, boilers, tools, tanks, compressors, pipe stills, fractional distillation, cracking, scientific apparatus and a thousand other things clamoring for attention—and worthy of it.

It's all a blur—until one classifies and groups the almost endless types and kinds of equipment, each in its proper place in the industry, and then the Exposition stands out clearly as symbolic not only of the petroleum industry's progress but of the world's industrial progress during the last 65 years.

Probably the first impression that the Exposition makes on the visitor is that the oil industry is nearly all metal. Hundreds of tons of metal are on exhibit—probably less than a dozen barrels of oil. And yet oil is the very essence of the Exposition.

On a little plot of ground, less than 50 feet square, in the east end of the Exposition grounds, one can go back 65 years to the beginning of the oil industry in America. Here is a replica of the derrick and the actual tools used by Drake in drilling the first well. Everything else on the Exposition grounds is a cross-section of the very latest thought and development of the industry.

Looking Forward

The oil man is little interested in what happened yesterday—but he is vitally interested in what is happening today—and what may happen tomorrow. And so we are far more prone to try to figure out the industry's probable line of development in the next few months than we are to figure out how it started with one well in 1859 and grew to a $9,000,000,000 industry in the intervening 65 years.

Measured in distance, its's less than 50 feet from the actual tools that Drake used, to some of the very latest type drilling tools used today. Measured in time, it's 65 years from the crowd that gathered around the Drake well, to the crowd that is now gathering around the Drake exhibit at the Exposition. Measured in terms of the industrial development of the last half century, the world's industries have been made over—and many new ones have been created.

As the source of the raw material out of which gasoline and lubricating oil are made, the petroleum industry is absolutely unreplaceable.

In a list of the basic raw materials out of which our industries are built, petroleum stands close to the top.

Hence the Exposition is not only symbolic of the oil industry itself, but it is symbolic of the world's industrial development during the last half century.

Marvelous Progress

Nothing could more vividly picture the industry's marvelous progress than the little 30-foot replica of the Drake derrick sitting among a half-dozen of the present day type of drilling rigs—or comparing his 300-pound "string of tools" with a present day string weighing several tons.

Only by contrasting the equipment used by Drake, with the equipment used today, are we able to realize the almost unbelievable progress made in the 65 years since he drilled the first oil well in America.

His derrick was about 30 feet high, entirely of wood, and enclosed. The steam engine was 6 horse power. Wood was used for fuel. The "casing" finally used, 47 feet of 6-inch pipe, was driven to solid rock, the remaining 22½ feet being drilled with a 3¾-inch bore hole.

Two "strings" of casing were used in the well: 47 feet of 6-inch pipe to bedrock—and copper pipe to the bottom.

The first "tubing" was common tin pipe and the first oil was produced with a common Pitcher pump.

The well was pumped "on the beam" and produced about 14 barrels a day until the pump was replaced with a working barrel when the production increased to 20 barrels a day.

From the date of its being "drilled in"—August 26, 1859—to the end of that year, the well produced about 1,800 barrels of a good grade of "green" oil. In three years the production had dropped to four barrels a day and the well was deepened to 450 feet, but with no increase in production.

First Tank Farm

The first oil produced was stored in wooden barrels. Shortly two "tanks" were ordered—one 8 by 10 by 4 feet high, the other 12 by 20 by 4 feet high.

Thus the first "tank farm" had a capacity of 228 barrels.

The first oil from this well sold for $10 a barrel—some for $1 a gallon. Within a few months overproduction sent the price down to 50 cents a barrel. The law of supply and demand was just as operative 65 years ago as it is today.

Drake's 30-foot derrick has grown to 120 feet—and from all-wood to wood and steel, or all-steel.

The 300-pound string of tools has grown to several tons—the drilling rope to 6,000 feet of specially drawn steel "line."

The 6-inch drive pipe has grown to 24-inch casing. The tin "water spout" has changed to 2 and 3-inch steel tubing. The pitcher pump has been replaced by a working barrel that combines everything that metallurgy, research, engineering design and practical experience have to offer at this, the first strategic point in the oil cycle: where the sand gives up its oil.

The 6 horsepower engine has given place to one of 30 horsepower that will stand more hard service than any other engine in the world—and the boiler has grown to 40 horsepower, with coal or gas for fuel.

The wooden oil storage tanks were shortly replaced with steel—and they have grown to 55,000 barrels as the regular size—80,000-barrel sizes are becoming quite frequent—and now we hear of still larger sizes.

Back to Candlelight

Several years before the Drake well Dr. Kier of Pittsburgh built a "refinery" with a 5-barrel still, to make illuminating oil from the crude oil that was beginning to appear with the water from the salt wells at Tarentum, Pa. Other refineries made their "coal oil" from the oil retorted out of coal and shale. Wth the drilling of the first crude oil wells, these "refineries" that made a poor grade of illuminating oil and equally poor lubricating oil were quickly changed over to "petroleum refineries." Contrast these few, small, crude plants with the present day type that are putting through about 2,000,000 barrels of oil a day.

Turning the imagination backward to the beginning of the industry in 1859, one sees a 14-barrel oil well, a druggist trying to make an illuminating oil out of the crude and 30,000,000 people in the United States burning candles and lamps filled with animal oils or "coal oil" made from coal or shale. Only a very few people knew anything about natural gas as an illuminant.

The Exposition is a great picture of "Oil in 1924," but one must paint on it an imaginative background of "Oil in 1859" in order to see the industry's present remarkable development in the light of its beginning.

The pipe line followed crude oil early in the 60's—after the pipe line came the tank car—years later came the tank steamer. For 50 years refining meant a fractionating still—and then we began thinking about "cracking" stills.

Natural gasoline from casinghead gas was 30 years in the future. Internal combustion engines were 30 years away—and with them the automobile—to be followed by the motor truck—and then the farm tractor—and still later the airplane. All of these industrial developments lay a generation in the future—when Drake drilled his well.

Real Message of Exposition

And to get the full significance of the petroleum industry that in 1924 has assets of more than $9,000,000,000 one must go back to the days of the old Drake well, visualize industrial conditions in the United States as they actually existed at that time—and then, step by step, trace each "ll-product-using industry as it has been developed. With that background of the slow, hard growth of these industries, both old and new, one gets the real "message" of the hundreds of exhibits at the Exposition.

It's a "petroleum" show—and yet there are only a few barrels of crude oil on the grounds—and less gasoline, and lubricating oil, and the long line of other petroleum products.

While equipment for the transporting, refining and marketing ends of the industry is very much in evidence—and while especial importance has been given to congresses, conferences, addresses and educational matters, the equipment for the production and handling of crude oil is easily the "biggest exhibitor" even though the other ends of the industry are generally represented.

Among the visitors to the Exposition are drillers who have worked in every oil field on the globe—and even though each field, each great producing area, and each country has its variations of equipment and practice, the outstanding fact in comparing the rigs, equipment and casing as displayed at the Exposition, with that of a few years ago, is the rapidly increasing depth of wells.

Drilling Progress

The drillers whose memories take them back 20, 30 or 40 years, have seen the derricks slowly increase in height as the bits searched for constantly deeper oil sands. Drake's entire outfit weighed only a few tons. A present day outfit, completely equipped for deep drilling, weighs, with casing, easily 100 tons. Contrast the "pulling power" of Drake's six horsepower engine, the strength of the derrick, the drill rope that he used and the "casing" with a present day 30 horsepower, 12 by 12 drilling engine, a standard 80-foot derrick, an inch steel line, a string of tools with all the sizes of bits, stems, etc., bailers of different sizes, casing from 20-inch down and finally a reasonably complete set of fishing tools, and one begins to realize something of the progress made in the equipment with which to produce oil.

In no other end of the industry is sheer "power" so absolutely necessary as in the equipment for drilling wells.

The men who are searching for oil are giving gradually harder problems to the men who make their boilers, engines, derricks, steel lines, rotary stems, bits, fishing tools, casing and water-protection devices and materials. How successfully the manufacturers have answered the drillers' problems is proven by the fact that the search for oil has not yet been limited by the equipment available for the drillers' use.

The making of special tools for no other industry in the world, and no profession, calls for even a fraction of the "imagination" that must be used by the manufacturer of fishing tools.

In the drilling of our more than 600,000 wells there have been hundreds of thousands of fishing

(Continued on Page 244)

Answer of Texas Co. in Cracking Suit

Denies Any Combination in Restraint of Trade and Details Steps Leading to the Contracts Between Patent Holders

The full text of the separate answer of The Texas Co. to the suit filed by the Government against some 50 oil companies, alleging that no valid patent totally covers present day cracking processes and charging The Texas Co., Standard Oil Co. (Indiana), Standard Oil Co. (New Jersey), and the Standard Development Co. with seeking to monopolize trade in gasoline, and generally alleging combination in restraint of trade under the Sherman anti-trust act, gives the first information relative to the line of defense to be offered by the oil companies. The answer was filed in the district court at Chicago by Silas H. Strawn, attorney for the company at Chicago, and was prepared by Judge C. B. Ames, general counsel, and Harry T. Klein, in addition to Mr. Strawn.

Admitting that present day cracking processes do not supplant but that they supplement the older distillation methods, The Texas Co. denies that there is any valid patent covering broadly the basic features of present day processes. It alleges that there have been issued many United States patents covering important and major improvements, that many of these are owned by the primary defendants to the suit and that these inventions have materially and in important respects contributed to the advancement of the oil cracking art. It denies that the processes employed by the defendants are in all substantial respects the same processes as those known and employed prior to application for or issuance of the respective patents, and denies that the procuring and use of the processes for cracking gasoline is but a device to lend color of legality to the alleged combination, conspiracy and monopoly.

No Unlawful Combination

The Texas Co. admits that it and other primary defendants own numerous United States and foreign patents for cracking oil, but denies that such patents are handled as a unit or pool in dealing with licensees, assignees and grantees and denies the existence of any unlawful conditions or practices and that it has become a party to any unlawful combination, conspiracy and monopoly. It denies that secondary defendants have been unable to secure manufacturing privileges under patent rights without agreeing to trade restrictions and denies that secondary defendants have accepted licenses because they were unwilling to incur the hostility of the primary defendants, but alleges they have done so because of their desire to utilize the inventions and improvements made by the defendants and the other primary defendants.

The Texas Co. admits it has entered into contracts with the Standard Oil Co. (Indiana), the Gasoline Products Co. and the Standard Oil Co. (New Jersey), referred to in the Government charges as pooling agreements, but denies that any of these contracts restrain or monopolize the interstate and foreign trade and commerce in gasoline and other products. It denies that these contracts realize huge profits for the primary defendants or impose onerous and oppressive conditions or pool patent rights, etc.

Text of Answer

Regarding The Texas Co.'s development of cracking processes, the answer says in part:

"About the year 1905 this defendant began a comprehensive and scientific study of the problem (of increasing gasoline supply by utilizing and converting the depreciated and less valuable heavy petroleum fractions into the more valuable product.) It was known at that time that for several decades previous it had been proposed to alter the character and specific gravity of coal and shale oils, and even petroleum, by subjecting them to heat and pressure in order to produce illuminating oils, now known as kerosene, from heavy grades or fractions thereof. It was recognized as a fact, at that time, that certain heavy oils could be transformed to some extent into lighter oils by treatment under heat and pressure, but nevertheless no complete or adequate information as to how this could be accomplished in a practical commercial way was available. Nor was it known that any actual commercial operations had been successfully carried out in the past; nor that the early suggested processes and apparatus culd be successfully utilized in actual practice for the production of the newly demanded product—gasoline. There was at that time no known industrial process or apparatus for manufacturing gasoline by cracking or decomposition through the application of high heat and superatmospheric pressure. With this extremely limited theoretical knowledge of the general results attainable by heat treatment of oil under pressure, this defendant attacked the problem of manufacturing cracked gasoline, and expended large sums of money in scientific research experimentation and development, and in the employment of trained scientists and skilled inventive and mechanical experts to carry on the work.

Adams Application

"During the year 1911 this defendant was brought into contact with one Joseph H. Adams, who had then for more than 10 years been making an independent and personal study of this problem and devoting his inventive talent to its solution. Adams, as early as December 1 1909, had filed a patent application in the United States Patent Office for a patent on an invention in oil converting apparatus, and on December 31, 1909, had filed another patent application on a process for the conversion of liquids, fluids and oils. These two patent applications disclosed a new and useful apparatus and process for producing gasoline from heavier petroleum fractions by cracking or decomposition through the agency of high temperatures and high superatmospheric pressures, but in a manner and under such conditions of operation and construction as to make possible the manufacture of cracked gasoline on a commercial and practical scale. The defendant assisted Adams in the commercial perfection and protection of his inventions, and expended large sums of money in industrially improving and developing the process and the apparatus and in the prosecution of patent applications to protect the same.

After years of thought, study and endeavor, given to the problem by Adams and other trained experts and skilled inventors employed by this defendant, and after the expenditure of large sums of money, a process and suitable apparatus for cracking oil into gasoline, or a gasoline-like product, were perfected and put into practical commercial use on an extremely large scale by this defendant. The two pending Adams patent application, above referred to, eventually matured into patents, and in addition thereto, numerous other patents on important improvements inventions of Adams and other employes of this defendant, as well as of independent outside inventors, were procured from time to time by this defendant. Besides the many patents which this defendant has already obtained, it now has on file in the United States Patent Office numerous patent applications for further important improvements in oil-cracking processes and apparatus, which applications are pending in the names of certain of its staff of inventive experts. In the prosecution of this work and in payments to Adams and other members of its staff of experts, this defendant has expended several hundreds of thousands of dollars, and in the construction and installation of apparatus and equipment for commercially practicing its cracking process on a large scale, it has expended several millions of dollars."

Charges regarding contracts referred to as primary or pooling agreements in the Government's suit, which are believed to constitute one of the most important angles of the litigation, and which in the Government's complaint are numbered 31, 55, 73, 74 and 77, The Texas Co. replies to in detail giving the history and character of the contracts. The company's answer covering these contracts follows practically in full.

Contract No. 31

After this defendant had obtained its patents Nos. 1,320,354 and 1,327,263 and had expended large sums of money perfecting the inventions set forth in these patents, it believed that the heat and pressure cracking operations of the Standard Oil Co. (Indiana) constituted a direct infringement of the aforesaid Adams patents and so charged said Standard Oil Co. (Indiana). As a result of this charge it received a countercharge from the Standard Oil Co. (Indiana) that its cracking operations constituted an infringement of the following United States patents owned by the Standard Oil Co. (Indiana) to-wit:

W. M. Burton patent, 1,049,667;
W. M. Burton patent, 1,167,884;
Humphreys patent, 1,119,700;
Palmer patent, 1,187,380.

At the time that it gave notice to the Standard Oil Co. (Indiana) of its claim of infringement, this defendant was prepared to expend large sums of money in installing the necessary apparatus and in conducting cracking operations under its patents. If the operations of the Standard Oil Co. (Indiana) infringed the patent claims of this defendant, this defendant would be entitled to recover large sums of money from Standard Oil Co. (Indiana) and enjoin said company from further infringing operations, and if the cracking operations of this defendant infringed the patents of Standard Oil Co. (Indiana) this defendant would engage in its cracking operations at the peril of being liable to that company for its profits and at the peril of being faced with an injunction restraining it from further operations.

To have litigated the question of infringement would have involved years of delay and hundreds of thousands of dollars of profits to be paid by the losing party. It would likewise have meant uncertainty and confusion not only in the refining operations of the Standard Oil Co. (Indiana) and this defendant, but of their licensees and in the industry generally. Moreover, if such litigation, when brought to an ultimate conclusion, should establish the validity of the patents of both parties, then neither would be free to proceed to either use or to license its process without making a settlement with the other.

Under these circumstances this defendant and the Standard Oil Co. (Indiana) entered into contract No. 31, in good faith, for the purpose of adjusting and compromising the respective claims of each against the other, by which each granted immunity to the other for its own operations, and each granted to the other authority to license its licensees not only under its own patents but under the patents of the other. By this contract great delay, expensive litigation, uncertainty and confusion were avoided, the industry generally received the benefit of the settlement and the two parties to the contract were free to pursue their own operations and to freely compete with

(Continued on Page 227)

SOLD OUT!

The first Petroleum Exposition Number of The Oil and Gas Journal, published October 2, was sold out as quickly as it reached the street, although thousands of extra copies had been printed.

The price of The Oil and Gas Journal is never changed, however big the book, but news stands report premiums up to a dollar being offered for a copy of the October 2 number.

The Second Petroleum Exposition Number, out today, will no doubt be sold out the same way.

We have repeatedly urged our friends to become regular subscribers to insure getting copies of all special editions, which always are quickly exhausted. Last week's number was easily worth $6, yet the 52 numbers of a whole year can be had for the same price.

Why not send in your subscription while you are attending the Exposition? Do it now!

TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns, Oct. 7

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

Main Service Station Price

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Chicago District—				
†100 gals. or more	13.0	...	16.0	11.0

Tank wagon prices on April 10 1922; g. up 1½c; May 8, g. up 1c; June 27, both up 1c; July 19, g. down 2c, k. down 1c; Oct. 10, g. down 2c; Oct. 21, g. down 1c; Feb. 6, 1923, g. up 1c; Feb. 20, g. up 1c; Aug. 14, g. down 6.5c; Oct. 4, k. down 1½c; Nov. 10, g. down 1.4c; Dec. 29, g. up 2c; Jan. 12, 1924, g. up 2c, k. up 1c; Feb. 5, g. up 2c, k. 1c; July 18 g. down 1c; July 30, g. and k. down 1c; Sept. 12, g. down 2c.

Decatur, Ill.	13.2	...	15.2	11.5
East St. Louis	12.1	...	14.35	10.6
Joliet	13.4	...	15.4	11.7
Peoria	13.2	...	15.2	11.5
Quincy	13.2	...	15.2	11.3
Davenport, Ia.	13.5	...	15.5	11.9
Des Moines	13.5	...	15.5	11.9
Keokuk	13.5	...	15.5	11.0
Sioux City	13.0	...	15.0	11.5
Duluth, Minn.	14.5	...	16.5	12.4
Minneapolis	14.2	...	16.2	12.6
La Cross, Wis.	14.2	...	16.2	12.4
Milwaukee	13.1	...	15.1	11.3
Madison	13.3	...	15.3	11.5
Detroit, Mich.	13.8	...	15.8	12.2
Grand Rapids	13.7	...	15.7	12.1
Saginaw	13.9	...	15.9	12.3
Evansville, Ind.	15.0	2.0	17.0	11.5
Fort Wayne	15.4	2.0	17.4	11.9
Indianapolis	15.2	2.0	17.2	11.7
South Bend	15.4	2.0	17.4	11.9
Fargo, N. D.	15.9	1.0	17.9	14.6
Huron, S. D.	17.0	2.0	19.0	13.1
Sioux Falls	15.0	2.0	17.0	12.6
*Kansas City, Mo.	13.9	1.6	15.9	10.3
Springfield	13.8	...	15.8	11.2
*St. Louis	12.6	0.5	14.9	11.0
*St. Joseph	13.0	0.5	15.0	10.9
Wichita, Kans.	12.8	...	15.0	9.8
Bartlesville, Okla.	14.4	...	16.9	9.9

*City tax.
†Tank wagon price on less than 100 gallons, 14c.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Newark, N. J.	13.5	...	....	13.0
Atlantic City	13.5	...	....	13.0
Annapolis, Md.	15.0	2.0	17.0	12.0
Baltimore	15.0	2.0	17.0	11.0
Cumberland	15.0	2.0	17.0	12.5
Washington, D. C.	16.0	2.0	18.0	12.5
Norfolk, Va.	17.5	3.0	19.5	13.5
Petersburg	17.5	3.0	19.5	13.5
Danville	17.5	3.0	19.5	13.5
Richmond	17.5	3.0	19.5	13.5
Roanoke	17.5	3.0	19.5	13.5
Keyser, W. Va.	15.0	2.0	....	13.5
Charleston	16.0	2.0	....	12.5
Parkersburg	16.0	2.0	....	13.5
Wheeling	16.0	2.0	....	13.5
Charlotte, N. C.	15.0	3.0	....	13.5
Hickory	15.0	3.0	....	13.5
Mt. Airy	15.0	3.0	....	13.5
Salisbury	15.0	3.0	....	13.5
Charleston, S. C.	15.5	3.0	....	14.0
Columbia	15.5	3.0	....	14.0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Atlanta, Ga.	17.0	3.0	20.0	13.0
Augusta	17.0	3.0	20.0	13.5
Macon	17.0	3.0	20.0	14.5
Savannah	14.0	3.0	17.0	13.0
Birmingham, Ala.	15.0	2.0	18.0	14.5
Mobile	14.0	2.0	17.0	12.0
*Montgomery	16.0	3.0	19.0	15.5
Clarksdale, Miss	15.0	3.0	18.0	12.0
Jackson	15.0	3.0	18.0	10.0
Natchez	14.5	3.0	17.5	11.5
Vicksburg	14.5	3.0	17.5	11.5
Jacksonville, Fla	15.0	3.0	18.0	13.0
Miami	17.0	3.0	20.0	14.5
Pensacola	15.0	3.0	18.0	13.5
Tampa	15.0	3.0	18.0	13.0
Lexington, Ky.	16.0	3.0	19.0	14.0
Covington	15.0	3.0	18.0	14.0
Louisille	15.0	3.0	17.0	12.0

*In addition to State tax of 2 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and ½ cent on kerosene.

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
San Francisco	17.0	2.0	20.0	15.5
Los Angeles	16.0	2.0	19.0	15.5
Fresno	17.5	2.0	20.5	17.5
Reno, Nev.	20.5	2.0	23.5	19.0
Portland, Ore.	19.0	3.0	22.0	16.5
Seattle, Wash.	18.0	3.0	21.0	16.5
Tacoma	18.0	3.0	21.0	16.5
Spokane	22.0	3.0	25.0	20.5
Phoenix, Ariz.	23.0	3.0	26.0	21.5

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Basin, Wyo.	17.0	1.0	....	14.0
Casper	15.0	1.0	17.0	12.0
Cheyenne	16.5	1.0	18.5	13.5
Cody	18.0	1.0	....	15.0
Lander	17.0	1.0	....	14.0
Albuquerque, N. M.	19.0	1.0	21.0	15.0
Salt Lake Utah	20.0	2.0	22.0	17.0
Ogden	20.0	2.5	22.0	17.0
Denver, Colo.	16.0	3.0	18.0	13.5
Glenwood Spgs.	20.0	2.0	....	17.5
Pueblo	16.0	2.0	18.0	13.5
Billings, Mont.	18.5	3.0	20.5	14.5
Butte	20.0	2.0	22.0	15.0
Great Falls	20.0	2.0	22.0	16.0
Helena	20.0	2.0	22.0	16.0
Miles City	19.5	2.0	21.5	16.5
Missoula	21.0	2.0	23.0	16.0
Boise, Idaho	22.5	2.0	24.5	19.0
Idaho Falls	22.0	2.0	24.0	18.5

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
*Pittsburgh, Pa.	13.0	...	19.0	14.0
*Philadelphia	13.0	...	19.0	14.0
Scranton	14.0	...	19.0	14.0
*Allentown	14.0	...	19.0	14.0
*Altoona	14.0	...	19.0	14.0
Dover, Del.	16.0	2.0	19.0	14.0
Wilmington	16.0	2.0	19.0	14.0

*Pennsylvania tax of 2 cents is collected by the dealer and paid by him direct to the State.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Albany, N. Y.	14.0	...	....	13.0
*New York	14.0	...	....	13.0
Buffalo	14.0	...	....	12.0
Rochester	14.0	...	....	13.0
Syracuse	14.0	...	....	12.0
Boston, Mass.	13.0	...	....	13.0
Providence, R. I.	13.0	...	....	13.0
Augusta, Me.	14.0	1.0	....	13.0
Manchester, N. H.	15.0	2.0	....	13.0
Burlington, Vt.	14.0	1.0	....	13.0

*Price in steel barrels.
Note: Standard Oil Co. of New York does not quote service station prices in its territory. In most cases the service station price is 2 or 3 cents higher than tank wagon price.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Omaha	11.0	...	13.0	11.5
Crawford	14.0	...	....	12.25
McCook	14.75	...	16.75	13.0
Norfolk	13.75	...	15.75	12.0
North Platte	14.75	...	16.75	12.75
Scotts Bluff	14.25	...	16.25	12.25

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Dallas, Tex.	12.0	1.0	16.0	10.0
Fort Worth	10.0	1.0	13.0	11.0
Houston	14.0	1.0	18.0	12.0
San Antonio	13.0	1.0	15.0	10.0
Muskogee, Okla.	12.0	2.5	17.0	11.0
Oklahoma City	12.0	2.5	17.0	10.0
Tulsa	12.0	2.5	15.0	10.0
Ft. Smith, Ark.	15.0	4.0	18.0	12.0
Little Rock	17.0	4.0	19.0	13.0
Texarkana	14.5	1.5	16.5	13.0

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
All Ohio points	15.0	...	17.0	14.0

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
New Orleans, La.	13.5	2.0	15.5	9.0
Alexandria	14.5	2.0	16.5	13.0
Baton Rouge	13.0	2.0	15.0	11.5
Lake Charles	14.5	2.0	16.5	13.0
Shreveport	14.5	2.0	16.5	13.0
Memphir, Tenn.	14.0	2.0	16.0	14.0
Chattanooga	15.0	2.0	17.0	14.5
Knoxville	16.5	2.0	18.5	15.0
Nashville	15.5	2.0	17.5	13.5
Bristol	17.0	2.0	19.0	13.5
Little Rock, Ark.	17.0	4.0	19.0	13.0

TANK WAGON CHANGES

Note.—Important changes were made in several territories during the past week. In the general reductions most points in the accompanying tables were affected the same for the territories where the changes were made. However, due to the local price wars, there were exceptions to the general reductions and it is suggested that those interested in the price at any particular point compare the prices given in this week's and last week's issue to obtain the exact change.

September 30.—Continental Oil Co. reduced gasoline tank wagon and service station prices 1 cent at Albuquerque, N. M.

October 1.—Standard Oil Co. of Indiana reduced the gasoline tank wagon price 1½ cents and the service station price 2 cents at Sioux Falls, S. D. The Standard Oil Co. of New Jersey reduced the gasoline tank wagon and service station prices in New Jersey and Maryland 2 cents, in District of Columbia, Virginia and West Virginia 1 cent and 3 cents in North and South Carolina. Standard Oil Co. of New York reduced the gasoline tank wagon price to 14 cents in New York and 13 cents in New England. Standard Oil Co. of Louisiana reduced the gasoline tank wagon price 1 cent and service station price 2 cents in entire territory. Standard Oil Co. of Kentucky reduced the gasoline tank wagon and service station prices from 1 to 4 cents with the exception of Covington, Ky., where no changes were made. Atlantic Refining Co. reduced the gasoline tank wagon and service station prices 3 cents in Pennsylvania and Delaware.

October 1.—Magnolia Petroleum Co. reduced gasoline service station price 1 cent at Tulsa. Same company reduced gasoline tank wagon 2 cents and service station prices 3 cents at Little Rock.

PIPE LINE OIL LESS IN TEXAS IN AUGUST

AUSTIN, Tex., Oct. 4.—Oil gathered by pipe line in Texas during August totaled 10,009,137 bbls., compared with 10,536,703 bbls. the previous month, a decrease of 527,566 bbls., according to the monthly statement by the oil and gas division of the Railroad Commission. The largest amount of oil was taken from the Navarro County fields, amounting to 2,334,897 bbls. Wichita County was second with 1,360,413 bbls. and Freestone third with 904,984.

Gatherings from other counties were: Archer 64,540, Atascosa 5,184, Bexar 12,759, Brazoria 400,605, Brown 6,946, Caldwell 18,238, Carson 25,505, Clay 7,737, Coleman 609, Comanche 39,833, Eastland 198,307, Falls 676, Fort Bend 24,487, Galveston 2,063, Harris 522,312, Hardin 188,734, Jack 4,291, Jefferson 28,712, Liberty 584,057, Limestone 684,069, Live Oak 22,774, Matagorda 1,376, Marion 5,355, Mitchell, 26,738, Orange 340,007, Palo Pinto 43,546, Shackelford 117,154, Stephens 560,357, Young 125,592, Williamson 1,922. Under the classification of "Various" the following gatherings are shown:

DeLeon 72,367, Electra 664,195, Luling district 467,332, Ranger 140,437.

WANT GASOLINE AS UTILITY

LOS ANGELES, Cal., Oct. 4.—The State Federation of Labor, in annual session at Santa Barbara, has adopted resolutions seeking to enact State legislation declaring gasoline to be a public utility and placing it under rule of the State Railroad Commission.

NORTH TEXAS MARKET GASOLINE IS WEAKER

FORT WORTH, Tex., Oct. 4.—The refined market in the North Texas district did not develop the strength of last week. Gasoline, all grades, was weaker with prices generally off ¼ to ½ cent. Fuel increased to $1 at Wichita Falls, the highest price in several months. Kerosene was firm, prices stationary. Gas oils were scarce and in demand.

Because of slow demand, stocks of New Navy gasoline have increased; refiners are anxious to unload. At the end of the week prices ranged from 6¼ to 6½ cents, with the buyers in control. Orders were few and prices weaker. The higher grades slipped in sympathy with New Navy; orders were scarce, 64-66, 375 end point, lost ¼ cent, selling from 8½ to 8¾ cents, with a weak demand.

There was practically no trading in natural gasoline; the grade classification was again in evidence, with the market slow and ¼ cent lower. Double A sold at 8 to 8¼ cents; single A the same; double B, 7¾ to 8; single B the same; C 7½ to 7¾ cents. There was no strength to the market, with plenty of the stock on hand. Fuel oil is scarce, there being none in storage and the demand at the week end exceeded the supply. Kerosene orders were plentiful, but no change in price. Water white sold at 4¾ to 5 cents, prime white, around 4½ cents, with enough in storage to care for all orders. Gas oil lost ¼ cent, with 2¾ cents recognized as the controlling figure. A majority of the refiners will accept only single car orders.

LOWER PRICES FEATURE PENNSYLVANIA MARKET

OIL CITY, Pa., Oct. 6.—Decreased gasoline prices are the feature of the refined oil market in northwestern Pennsylvania during the past week. The big reductions in the tank wagon market also sent the tank car quotations sliding downward. Prior to the slashing of the retail markets the wholesale prices had declined some but the price cutting in the tank wagon market sent the tank car prices down more swiftly. The demand is off to a considerable extent, not as the result of any material drop in actual consumption but because the jobbers and marketers are putting off buying as long as possible on account of the possibility of still lower prices.

The demand for kerosene continues good but it is a little lower than that of the previous week. The prices are a little softer.

Neutrals are about the same as the previous week. Stocks are no stronger and the demand seems to be a little weaker. Wax is about the same. Fuel oil is stronger.

COASTAL QUOTATIONS ARE REPORTED FIRM

HOUSTON, Tex., Oct. 6.—The Houston refined market does not need crutches. All refineries report increased prices firm and the demand holding up well. Little, if any tendency to boost fractional prices is in evidence, although the price structure is characterized as very firm. One refiner has advanced 200 vis. pale oil ½-cent from 12 cents to 12½ cents and 500 red oil ½-cent from 14½ cents to 15 cents. The other refiners show no disposition to hike their quotations.

Zero cold test oils are in great demand, especially the 200, 300 and 500 viscosity pale and red oils. This is the usual seasonal buying movement, although it seems a little stiffer this year than last. Contract market is strengthening a little and a few contracts are being negotiated. Fuel oil stands steady at 3¾ cents to 4 cents a gallon and hard to get. Most of this product is contracted for in advance. Fuel oil still holds around $1.50 to $1.60 a barrel and a good, strong movement at that price.

BEHIND the Sinclair trade-mark are Sinclair's Refineries producing a line of oil products of high uniform quality—a quality that is maintained in every can, barrel or tank car showing the Sinclair trade-mark.

SINCLAIR REFINING COMPANY

New York: Sinclair Oil Bldg., 45 Nassau St. Chicago: 111 W. Washington St.

Cable Address: "Lucent"

Refineries:

EAST CHICAGO, INDIANA
KANSAS CITY, KANSAS
COFFEYVILLE, KANSAS
CUSHING, OKLAHOMA
MUSKOGEE, OKLAHOMA
HOUSTON, TEXAS
WELLSVILLE, N. Y.
PHILADELPHIA, PA. (under construction)

SINCLAIR OILS

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A GREAT BUSINESS, NOT A GAMBLE

The ordinary consumer of gasoline whose sole contact with the oil industry has been the purchase of motor fuel at the filling station was well repaid for a visit to the International Petroleum Exposition this week.

Such an inspection of the great exhibition of equipment used in the oil industry must have given him an entirely new and respectful conception of the vast enterprise and activity which supplies him with gasoline.

For one thing he had no idea of the massive equipment employed in drilling wells, gigantic tools and immense machinery that dwarfed all his notions of sinking a hole in the ground.

He was able to realize for the first time the power and strength necessary to drill a mile deep, a feat that can be appreciated only at the derrick floor.

Yet with all these titanic tools he noted with unceasing amazement there were refinements in invention for varying purposes, accessories and improvements of the most intricate design and, to him, complexity in application.

He noted, moreover, that the oil men were intently examining each and every innovation, discussing its feasibility and debating its merits with the intimate and enthusiastic interest of men who know their business from the ground up.

These were very different men from the "adventurers and gamblers" he had been led to believe made up the oil business. Their talk was of practical every day work, hard, unremitting labor, of production and manufacture in terms of ordinary industry and trade, with losses to be avoided and profits to be earned, just as in any other business.

Then he began to understand that the oil industry is a matter of fact every day business and not a gamble to the men who work in it. He began to sense the spirit of the Exposition, that constant search for more effective means of production, for deeper drilling, for larger recovery from the earth and larger recovery from the crude of the products of petroleum the world increasingly demands.

This was the inner meaning of the Exposition, of the intensely competitive conditions which keep the manufacturers of oil well supplies continually on their toes and which have so splendidly served the industry with constantly progressing efficiency.

He was impressed, too, with the singleness of purpose evident on all sides between the men who make these supplies and the men who work them. Criticism from the users was welcomed for the suggestions from practical use. The oil men were just as eager to hear from the makers what their exhibits were expected to do in increasing efficiency. Their aim was identical. They shared alike a common pride in workmanship.

They feel, with a loyalty unmatched in any other, that it is their industry as it is their exposition, the greatest assemblage of oil producing, refining, transporting and marketing equipment the world has ever seen. Small wonder they are proud of it, that they tramped up and down the long aisles keenly expectant, everlastingly interested, alert and anxious that nothing should escape their notice or their understanding.

And what an infinite variety of inventions demanded their attention. From full sized derricks, rotaries and engines, down to the tiniest miniatures, working models perfect in every particular, exhibits costing thousands upon thousands of dollars, single examples set up regardless of expense but displaying the vital points in actual operation, processes detailed in model, pattern and diagram, there was nothing omitted or overlooked.

The thoughful gasoline consumer who took in all this must have left the grounds with a sobering appreciation of what lies behind the filling station on the busy corner and the lonely pump on the roadside wherever his car takes him.

Some such impression appears to have been made upon the visiting attorneys general who toured the Oklahoma fields and the Exposition as the guests of Attorney General Short. When The Oil and Gas Journal originally suggested this invitation a year ago it was believed the good results apparent from this visit would be obtained. The tone of the comment from the guests showed the effect of their understanding of the problems of the oil industry gained by direct touch with actual conditions.

The visiting officials were particularly pleased with the frankness and cordiality of their welcome by the oil men of Oklahoma. They found there was nothing to conceal from them; that the facts themselves constituted the most convincing argument for the oil men's case.

The prepossessions with which they came to Oklahoma, based on popular misunderstanding of the oil situation, were quickly corrected. Oil men were specially glad to have the opportunity of stating their side to the attorney general from Wisconsin, Senator LaFollette's own State. And no less so to find that Mr. Ekern was open to conviction despite opinions so popular in his State.

His observation about the necessity of assuring a continued supply of gasoline showed that he grasped the hazards of the oil business and the problems faced by producers and refiners. It is not cheaper gasoline but continued service that must be kept in mind. And his observation regarding the folly of government operation was no less sound. It is the conclusion that every thinking man must come to, whether it be government operation of the railroads, shipping, sugar, coal or oil.

Wherever government has attempted to function in business it has failed ignominously. It has been a source of huge losses to the country that had to be repaid in taxes; it has failed to give service or where it did give some sort of service it was at greatly increased cost. There is not the slightest reason to assume that it could be more successful in attempting to operate an industry so peculiar and so precarious as the oil business.

And if government operation is unthinkable government control is no less so. Wherever government control has laid its hand on industry or business its effects have been blighting on individual initiative, and consequently on enterprise and service.

The petroleum industry has reached its present world wide importance solely through the personal initiative of oil men so splendidly exemplified in the International Petroleum Exposition now in progress. That exhibition is an unanswerable argument to the political critics of the industry and a liberal education for all who use the products of petroleum.

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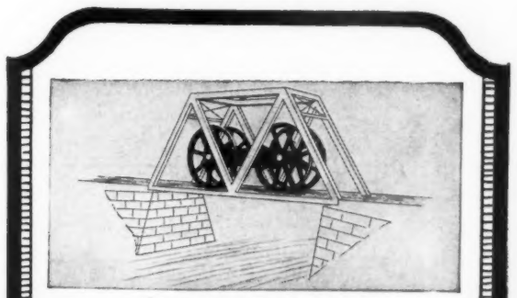

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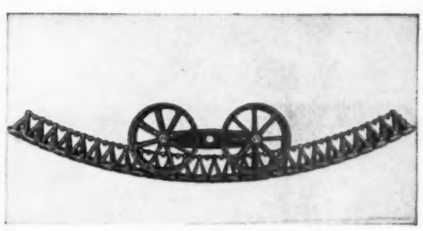

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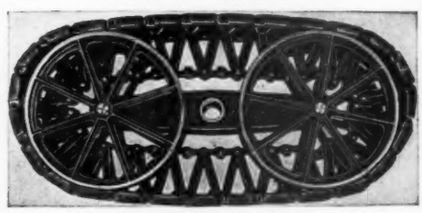

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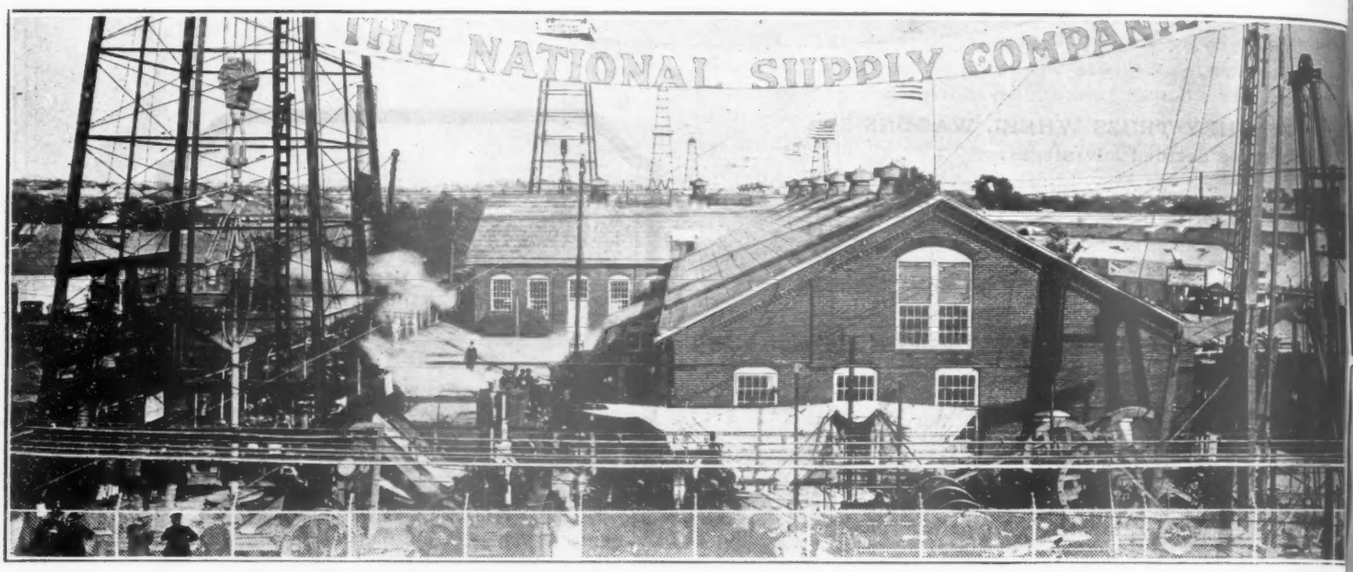
National-Ideal at the Petroleum Exposition

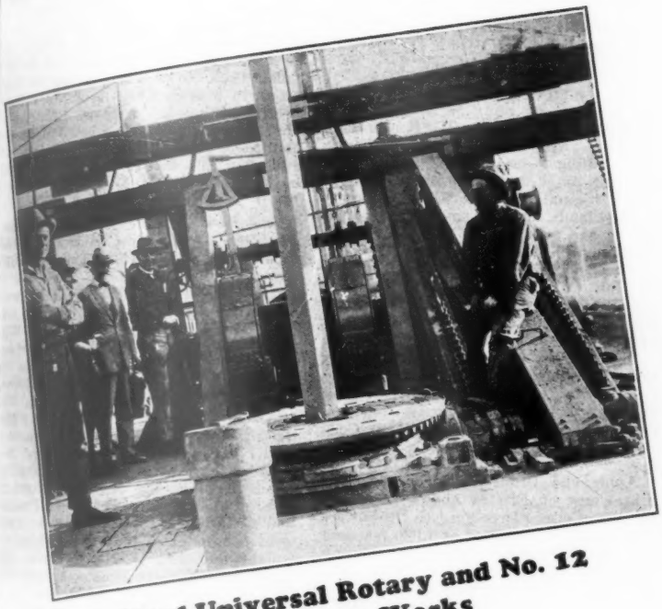


View of the National Supply Companies exhibit at the International Petroleum Exposition

National No. 3 Portable Drilling Machine

The National Supply Companies

National-Ideal at the Petroleum Exposition



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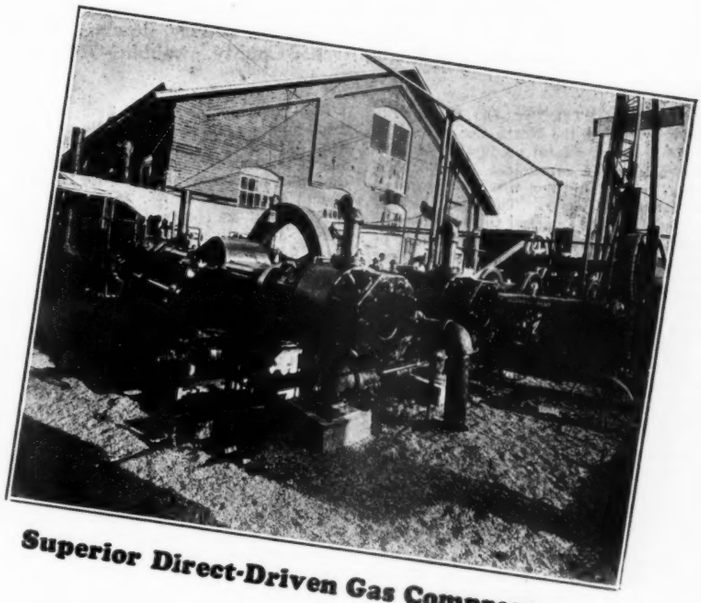

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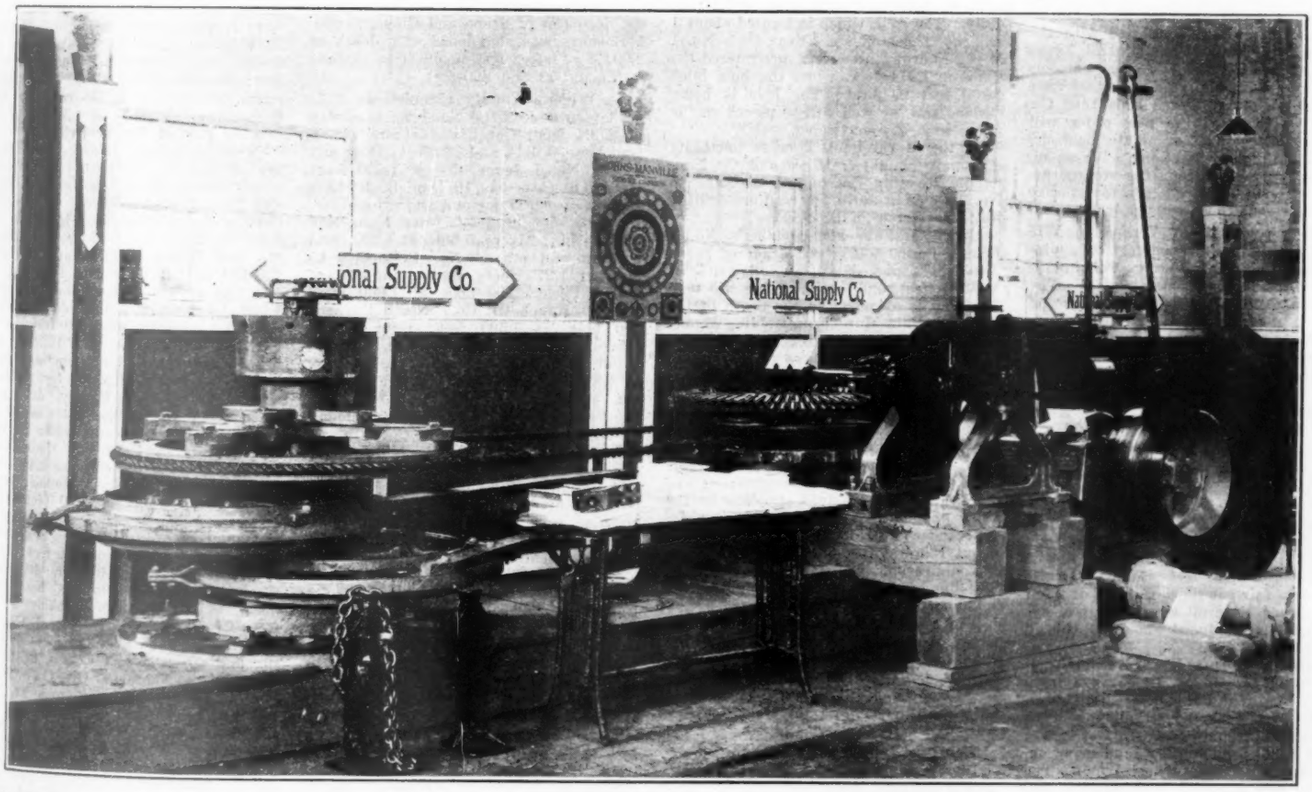


National 12 C Bandwheel Pumping Power, No. 6 Geared Pumping Power and Ideal Reduction Gear

The National Supply Companies

North-Central Texas Field

By Dan F. Dugan

Production shows loss of 1,460 bbls. daily, with 10 more producers completed. Critten and others' No. 6 Cobb, Stephens County, showing 1,365 bbls. Skelly Oil Co.'s No. 1 Burnett, Carson County, flowing 300 bbls. Consolidated Oil Co.'s No. 2-D Ragle, Archer County, swabbing 310 bbls.

FORT WORTH, Tex., Oct. 6—For the week in review the North Central Texas Field reported a total production of 121,400 bbls. daily as against 122,860 bbls. daily for the previous seven days, a loss of 1,460 bbls. daily. Three of the districts reported gains and three decreases; gains were reported from Burkburnett of 15, Eastland County 85 and the wildcat districts 85 bbls. daily. Losses of 740 bbls. were made in the Electra district, 225 bbls. in Iowa Park and 680 bbls. daily in Stephens County.

Completions in the field for the past week numbered 56, of which 36 produced oil and 20 were dry. Compared with last week there were 10 more oil producers and 5 more dry holes. Stephens County reported the largest initial producer, Critten and others' No. 6 Cobb, which is showing 1,365 bbls. at 3,255 feet. The second largest producer was in Carson County, the Skelly Oil Co.'s No. 1 Burnett, which is flowing 360 bbls. at 3,095 feet.

Archer County's largest well was the Consolidated Oil Co.'s (formerly Knight & Hines) No. 2-D, Ragle, swabbing 310 bbls. at 1,090 feet.

The announcement made by The Texas Co. that it would purchase all of the oil now held in storage connected with the company's lines in North Central Texas that had been run for storage only, is welcome news to the producers that have been selling to the Texas Pipe Line Co. and it is expected the new order will have a tendency to stimulate field development in many sections. Where oil owners elect to continue the storage arrangement the usual charges for storage and other conditions will apply.

It is reported from Vernon in Wilbarger County that a contract on a pipe line from the South Vernon Pool to the Electra district, approximately 24 miles, has been closed between R. M. Moore, of Vernon, and Charles Culp, representing the Waggoner interests, and the producers in the new Wilbarger County Pool. The line, a 4 and 6-inch line, is expected to be started during the next week or 10 days.

Tests in Wildcat Counties

Tests in wildcat counties that have been drilled deeper with the result that their production has been increased are: Humble Oil & Refining Co.'s No. 1 Stubblefield, block 991, Throckmorton County, flowing at a rate of 75 bbls. a day from a sand encountered at 3,190 feet and penetrated to 3,197 feet. The well is also showing a fair gas flow. A sand at 2,987 feet showed some oil a week or two ago and actually produced about 90 bbls. a day on the swab.

Skelly Oil Corp.'s No. 1 Burnett, Section 93, I. & G. N. Block 5, Carson County, featured Panhandle activity during the past week. After making about 95 bbls. in 12 hours at 2,975 feet it was drilled 3,005 feet, another sand being encountered which was drilled 1 foot. The well is now credited with flowing 360 bbls. daily.

Turner & Clayton, Inc.'s No. 3 Jones, 3 miles northwest of Eastland in Eastland County, is flowing by heads following a shot at a depth of 3,373 feet. The drill is 42 feet in the sand and it is believed it will be a fair producer.

Drilling about 12 feet deeper, the Wells-Guiberson discovery well in the 2,000-foot pay in the South Vernon oil field, Wilbarger County, has encountered one of the richest pay sands yet found in that district, estimated good for around 500 to 1,000 bbls. daily. It is an offset to Bridwell & Heydrick's No. 1 Dill, which, at a slightly greater depth, was good for about 400 bbls. initial. The larger production was secured just after drilling through a limestone shell at 2,010. It originally produced around 175 bbls. daily.

Archer County

Field development is on the increase in all sections of Archer County. The most active spot at present is north of Olney in the south part of the county. Here almost a solid string of derricks extends from the Consolidated Oil Co.'s producers in the Ragle Pool west and northwest approximately 9 miles, to the borders of the Swastika Pool east of Megargel.

Archer County nearly doubled its usual number of producing completions the past week, with many of the new wells showing more than the usual maximum initial daily production.

The Humble Oil & Refining Co.'s No. 1 Pease, Schnell survey, is semi-completed with an estimated production of 75 bbls. daily. The well, which is located about 1 mile northeast of The Texas Co.'s No. 1 M. L. Andrews producer, encountered the sand at 1,474 feet, when the hole filled 1,100 feet in fluid. The hole is being cleaned and the well will be placed on the pump in a day or two.

In the Ragle Pool, 2 miles northeast of Olney, Knight & Hines and the Panhandle Refining Co. topped the sand in No. 2 Davis at 1,074 feet and are drilling in. The test is n Block 11.

Murchison-Fain and Golding's No. 1 Echols, in the southwest corner of Block 2,405, has picked up an oil sand at 1,314½ feet and setting pipe to test. The well is an offset to the north of the Marland, Fain-Murchison, Golding Hamel producer, which is making 75 bbls. daily.

Daniels and Rutis have cored into an oil sand in their No. 1 Parkey wildcat test in Block 37, Dallas County school lands. The test, 2 miles northwest of the Comac group of producers, encountered the sand at 1,508 feet and was cored into 4 feet. It is showing considerable oil and no water.

With 90 feet of fluid standing in the hole, the Graveyard well of Daniels, Murchison, No. 1 Lester, Block 2451, about 1 miles west of Megargel is showing indications of making a producer. The top of the sand was encountered at 1,490 feet and was barely scratched.

The Shamrock Oil Co.'s No. 1 Boren, Olney district, was semi-completed in the 1,000-foot sand with a daily production estimated at 150 bbls. The well is an offset to the south of the Consolidated Oil Co.'s producers on the Ragle lease.

Wichita County

There were substantial gains in field activities in all sections of Wichita County during the past week.

Activity in the Fowlkes district in Sections 5 and 6, S. B. Burnett lands, resulted in the completion of the Texhoma Oil & Refining Co.'s No. 2, with a daily production from the 1,812-foot pay of 110 bbls. No. 2-A Burnett, 300 feet south, encountered the sand at 1,807 feet and will be bailed.

On the older leases in the South Electra Pool great activity is being shown, from drilling to cleaning out the old producers in an effort to keep up production.

The original Hill & Roberts Co. on the Overby lands, near Murphy's Corner, is bailing the sand in its No. 11 at 1,669 feet and it is showing up for a 200-bbl. producer. Three other tests, by the Electra-Gulf Co., J. A. Gardner and others and Petroleum Producers Co., are drilling. The latter is testing out th 1,600-foot pay in its No. 3 on the Peeler land.

The Murphy's Corner section, which came into the productive limelight some time ago by the completion of some good producers but has been inactive, reported the completion of the Shappel Oil Co.'s No. 15 Jaekson for 100 bbls. at 1,812 feet.

Apple and Bradeberry's No. 11 Jennings, east of Electra and west of the Empire Co.'s Pierce-Forryce lease, set casing on top of a sand at 1,960 feet and will bail and test at that depth.

Baldwin Brothers' Kennedy lease in the Sunshine Hill district, set casing and will test an oil sand in No. 4 at 1,684 feet and 1,688 feet.

Another failure was reported in the district to the north of Iowa Park when the deep test of Stone and Clopton's No. 1 Bashara was abandoned at a depth of 2,004 feet, after testing out two shallow sands at 800 and 860 feet.

Wichita County Completions

Clopton and others' No. 1 Bashara, dry at 2,004 feet; Couch and others' No. 9 Donohoe, 30 bbls. at 1,330 feet; Darr and others' No. 1 Jenne, dry at 1,800 feet; Grace Oil Co.'s No. 10 Daniels, 10 bbls. at 1,325 feet; Hammond and others' No. 1 Willis, dry at 1,640 feet; Kuhn and others' No. 1 Myers, 5 bbls. at 1,360 feet; Duncan and others' No. 4 Rhodes, 15 bbls. at 1,275 feet; Bower and others' No. 6 Peeler, 100 bbls. at 1,660 feet; Burnett Ranch Oil Co.'s No. 5 Burnett, 100 bbls. at 1,590 feet; Douglas and others' No. 3-A Jennings, dry at 525 feet; Elliott and others' No. 1 Jennings, dry at 1,835 feet; Empire Gas & Fuel Co.'s No. 4 Pierce, 185 bbls. at 1,560 feet; Gordon Oil Co.'s No. 2 Burnett, 5 bbls. at 580 feet; Knight and others' No. 7 Kemp, 100 bbls. at 1,640 feet; Petroleum Production Co.'s No. 8 Maer, dry at 1,260 feet; Shaw and others' No. 3 McCarty, 50 bbls. at 1,700 feet; Texhoma Oil & Refining Co.'s No. 2 Burnett, 110 bbls. at 1,810 feet.

Wichita County Drilling

Couch and others' No. 1 Donohoe, drilling at 100 feet; Miller and others' No. 1 Evans, standardizing on top of an oil sand at 1,625 feet; Magnolia Petroleum Co.'s No. 9 Beach, drilling in shale at 1,200 feet; No. 106 Reilly, drilling in rock at 1,392 feet; No. 107 Reilly, drilling in shale at 900 feet; Apple and others' No. 10-A Jennings, drilling out a plug at 1,980 feet; Barr and others' No. 1 Fisher, drilling in soft rock at 610 feet; Brewer and others' No. 1 Hinson, drilling at 1,590 feet; Burnett Ranch Oil Co.'s No. 8 Burnett, rigging to bail oil sand at 1,795 feet; Carter and others' No. 1 Hodge, drilling in shale at 1,785 feet; Electra-Gulf Oil Co.'s No. 7 Murray, drilling in brown shale at 600 feet; Gardner and others' No. 3 Peeler, setting 6⅝-inch casing at 1,670 feet; Gwynn and others' No. 1 Waggoner, drilling at 840 feet; Hill and others' No. 9 Overby, rigging to pump and test at 1,660 feet; Kruger and others' No. 7 K. & K., rigging to pump at 1,220 feet; Magnolia Petroleum Co.'s No. 10 Douglas, drilling at 645 feet; No. 7 Waggoner, drilling at 1,655 feet; No. 3 Pere Waggoner, drilling in brown shale at 1,435 feet; No. 3 Rio Bravo, drilling at 1,035 feet; Parker and others' No. 1 Hodge, fishing for bailer at 1,810 feet; Perkins and others' No. 9 Burnett, drilling in blue shale at 1,730 feet; Petroleum Production Co.'s No. 9 Maer, rigging to pump sand at 1,660 feet; Rio Bravo Oil Co.'s No. 5-2 Lee, drilling in shale at 1,640 feet; Robertson and others' No. 1 McCarty, rigging to pump below 1,700 feet; Ryan and others' No. 25 Nance, drilling in rock at 1,595 feet; Texhoma Oil & Refining Co.'s No. 3 Burnett, has 100 feet of oil in hole at 1,812 feet; No. 4 Burnett, drilling in shale at 1,230 feet; Underwood Drilling Co.'s No. 5 McCarty, drilling in rock at 1,360 feet; Underwood and Church's No. 7 Maer, drilling in brown shale at 630 feet.

Archer County Completions

Anderson and others' No. 1 Hughes, 10 bbls. at 600 feet; Humphreys and others' No. 5 White, 25 bbls. at 1,[illegible] feet; Magnolia Petroleum Co.'s No. 1 Parrish, 45 bbls. at 1,595 feet; Maxwell and others' No. 1 Parkey, dry at 1,[illegible] feet; Murchison and others' No. 1 Wilson, 65 bbls. at 1,625 feet; Robertson and others' No. 1 Parrish, 75 bbls. at 1,585 feet; Sun Oil Co.'s No. 1 Andrews, dry at 1,520 feet; Green and others' No. 1 Ambercrombie, dry at 1,800 feet; McGregor and others' No. 5 Llewellyn, dry at 1,770 feet; Mitcham and others' No. 1 Taber, dry at 1,540 feet; Panhandle Oil & Refining Co.'s No. 1 Llewellyn, 25 bbls. at 1,405 feet; Petroleum Production Co.'s No. 1 Llewellyn, dry at 1,[illegible] feet; Consolidated Oil Co.'s (formerly Knight and Hines) No. 1 Davis, 2[illegible] bbls. at 1,095 feet; same company's No. 2 Davis, 300 bbls. at 1,100 feet; same company's No. 3-B Ragle, 80 bbls. at 1,085 feet; same company's No. 3[illegible] Ragle, 310 bbls. at 1,090 feet; same company's No. 3-D Ragle, 90 bbls. at 1,[illegible] feet; Jennings and others' No. 1 Hausler, 35 bbls. at 1,110 feet; Murchison and others' No. 1 Harned, 80 bbls. at 1,[illegible] feet; Shamrock Oil Co.'s No. 6 Goldsmith, 25 bbls. at 1,350 feet; No. 11-B Richardson, 155 bbls. at 1,329 feet.

Archer County Drilling

Carter and others' No. 1 Wilson, drilling in shale at 1,300 feet; Godfrey and others' No. 1 White, showing a little oil and drilling at 1,435 feet; Griswold Oil Corp.'s No. 1 Andrews, drilling in blue shale at 1,280 feet; Moore and others' No. 1-A Wilson, drilling at 1,600 feet; Tex-O-Kan Oil Co.'s No. 4 White, has 400 feet of oil in hole and drilling at 1,600 feet; White and others' No. 1 Anderson, drilling at 1,370 feet; Woodburn Oil Corp.'s No. 8-A Wilson, drilling without any oil showing and below production depth at 2,670 feet; Daniels and others' No. 1 Parkey, drilling at 1,360 feet; Evangeline Oil Co.'s No. 1 Farmer, bailing oil and water at 1,[illegible] feet; Magnolia Petroleum Co.'s No. 1 Llewellyn, frozen casing at 1,445 feet; Carey and others' No. 1 Hausler, standardizing to pump at 1,126 feet; Clark and others' No. 1 Echols, will pump and test at 1,315 feet; Flowers and others' No. 1 Hayter, drilling at 960 feet; Jeffers and others' No. 2 Hausler, drilling at 840 feet; Lowry and others' No. 3 Harbison, drilling in brown shale at 90[illegible] feet; Melat and others' No. 1 Gholson, will bail oil sand at 1,345 feet; Murchison and others' No. 1 Echols, drilling at 1,200 feet; Nebraska Oil Co.'s No. 1 Holpsek, drilling in soft rock at 1,[illegible] feet; Anderson and others' No. 1 Benson, fishing for tools at 450 feet; Russell and others' No. 3 Benson, drilling at 630 feet; Shamrock Oil Co.'s No. 1 Boren, showing 100 bbls. a day daily production and not yet completed at 1,[illegible] feet; No. 4 Richardson, drilling in shale at 1,295 feet; Young and others' No. 1 De Moss, drilling in shale at 1,090 feet.

Young County

Completions—Cheney and others' No. 1 Driver, dry at 2,715 feet; Nine Hundred Oil Co.'s No. 3 Benson, 25 bbls. at [illegible]

feet; Reed and others' No. 1 Graham, dry at 2,920 feet.

Drilling—Brain and others' No. 1 Vernon, drilling at 650 feet; Foster and others' No. 2 Mahoney, plugging to abandon at 3,886 feet; Grant and others' No. 1 Casey, drilling at 720 feet; Harvey and others' No. 1 Hill, fishing job at 425 feet; Herbert Oil Co.'s No. 1 Johnson, drilling at 1,350 feet; McGarr and others' No. 1 Johnson, showed production after shot but will drill deeper at 3,855 feet; Olney Production Co.'s No. 1 Kemp, showing 50 bbls. a day production and drilling at 1,100 feet; Simms Oil Co.'s No. 1 Willis, underreaming 8-inch casing at 2,510 feet; Texas Central Oil Co.'s No. 1 Taag, drilling in soft rock at 780 feet; Stovall and others' No. 2 Stovall, fishing for casing at 3,150 feet; Union Oil Co.'s No. 1 Keithley, fishing for 8-inch casing at 3,050 feet; Vance and others' No. 1 Davis, drilling in rock at 1,425 feet; Winnepeg Oil Co.'s No. 1 Benson, drilling in brown shale at 460 feet.

Stephens County

Completions: Brown & Co.'s No. 4 Brown, 225 bbls. at 3,955 feet; Lewis Oil Co.'s No. 2 Stoker, dry at 3,860 feet; Critten and others' No. 6 Cobb, 1,365 bbls. at 3,255 feet; Mid-Kansas Oil & Gas Co.'s No. 4-A Acct. 2, Lowe, 80 bbls. at 3,245 feet.

Drilling: Critten and others' No. 7 Cobb, drilling in rock at 2,520 feet; Hoffer Oil Corp.'s No. 1 Webb, drilling with hole full of water at 1,980 feet; Riner and others' No. 2 Brown, drilling in shale at 2,065 feet; Pierce and others' No. 1 Crudington, pulling 5-inch casing at 3,420 feet; Prairie Oil & Gas Co.'s No. 15 Atkins, drilling by tools at 3,265 feet; No. 2 Caldwell, drilling at 1,955 feet; Haney Buckeye Oil Co.'s No. 2 Walker & Caldwell, fishing for casing at 3,840 feet; Rochelle and others' No. 8-A Sweeney, drilling in gray lime at 3,230 feet; Swensondale Oil Co.'s No. 1 Echols, sidereaming for 6-inch casing at 2,800 feet; Walker and others' No. 4 First National Bank, swedging casing at 1,750 feet; No. 5 First National Bank, running casing at 1,200 feet; Carter and others' No. 1 T. & P., drilling at 1,460 feet; Humble Oil & Refining Co.'s No. 1 O'Laughlin, drilling with hole full of water at 1,835 feet; Ice and others' No. 1 McClesskey, fishing for tools at 1,830 feet; Knox-Lewis Oil Co.'s No. 1 Flornoy, drilling in brown shale at 1,350 feet; Landreth Oil Co.'s No. 1 Ward, drilling at 915 feet; Magnolia Petroleum Co.'s No. 9 Brown, fishing for casing at 3,175 feet; McLester and others' No. 1 Robertson, drilling at 3,450 feet; The Texas Co.'s No. 10 Curry, drilling in shale at 1,575 feet; Texas Pacific Coal & Oil Co.'s No. 1 Hand, drilling by tools at 2,135 feet; Triplehorn Petroleum Co.'s No. 1 Adams, drilling in gray lime at 3,260 feet; Welch and others' No. 2 Saunders, drilling in hard rock at 1,350 feet.

Eastland County

Completions: Adams and others' No. 1 Dawson, 15 bbls. at 1,470 feet.

Drilling: Brothers Oil Co.'s No. 1 Watson, fishing for tools at 3,130 feet; Hodnett and others' No. 1 Sibley, drilling at 280 feet; Reclamation Oil Co.'s No. 6 Bond, fishing for casing at 2,500 feet; States Oil Corp.'s No. 8 Quiett, drilling in soft rock at 1,930 feet; Williamson and others' No. 4 Parks, drilling in brown shale at 900 feet; Grisham and others' No. 1 McDonald, set 8¼-inch casing and will start drilling at 1,200 feet; Rosenfield and others' No. 1 Brunett, fishing for pipe at 3,200 feet; Turner and others' No. 3 Jones, set 6⅝-inch casing on top of the sand at 3,245 feet.

Wildcat Completions

Wilbarger County: Bridwell and others' No. 1 Dill, 420 bbls. at 2,020 feet.

Carson County: Skelly Oil Co.'s No. 1 Burnett, 360 bbls. at 3,095 feet.

Clay County: Lone Star Gas Co.'s No. 20 Martin, dry at 2,002 feet.

Palo Pinto County: Guarantee Royalty Co.'s No. 1 Mosley, dry at 2,450 feet.

Reagan County: Dunning and others' No. 1 Sawyer, dry at 3,500 feet.

Brown County: Gillman and others' No. 5 Newton, dry at 1,305 feet; Maher Brothers' No. 1 Bashara, dry at 2,260 feet; O'Donnell and others' No. 1 Chambers, dry at 1,260 feet.

Wildcats Drilling

Hutchinson County: Dixon Creek Oil Co.'s No. 1 Smith, spudding at 150 feet; Amarillo Oil Co.'s No. 2-B Biven, drilling in red rock at 1,060 feet; Prairie Oil & Gas Co.'s No. 1 Deahl, pumping oil at 3,122 feet; Twin Six Oil Co.'s No. 1 Kingsland, coring at 1,200 feet; Tex-O-Oil Co.'s No. 1 Johnson, showing 7,000,000 feet of gas at 1,175 feet; Western Enterprise Oil Co.'s No. 1 Smith, drilling in rock at 1,980 feet.

Carson County: American Refining Co.'s No. 2 Burnett, drilling at 2,725 feet; No. 3 Burnett, drilling at 1,240 feet; Danciger Oil Co.'s No. 1 Burnett, drilling in red rock at 2,680 feet; Olsen and others' No. 1 Burnett, drilling in shale and gyp at 1,860 feet; The Texas Co.'s No. 4 Burnett, has heavy gas flow, showing 25 bbls. of oil and drilling at 2,920 feet.

Gray County: Holmes and others' No. 1 Morris, drilling in shale at 520 feet; The Texas Co.'s No. 1 Saunders, showing 73,000,000 feet of gas and fishing for tools at 2,805 feet.

Wilbarger County: Dill Farm Oil Co.'s No. 1 Dill, underreaming at 1,870 feet; Magnolia Petroleum Co.'s No. 15 Rogers, drilling in soft rock at 1,310 feet; Noble Oil Co.'s No. 75 Waggoner, drilling in blue shale at 1,815 feet; Winnepeg Oil Co.'s No. 1 Bond, drilling in mud at 1,770 feet.

Baylor County: Moore and others' No. 1 Fancher, drilling oil sand at 965 feet.

Clay County: Atlantic Oil Co.'s No. 1 Scalling, drilling a water sand at 2,085 feet; Lone Star Gas Co.'s No. 6 Panhandle, drilling out plug at 1,506 feet; O'Neil and others' No. 5 Ross, drilling in soft rock at 1,375 feet.

Montague County: Guarantee Fund Oil Co.'s No. 1 Jordan, drilling in hard blue shale at 2,867 feet; Texhoma Oil & Refining Co.'s No. 1 Howard, has 300 feet of oil in hole and showing for commercial producer at 860 feet; Wood and others' No. 2 Summerour, drilling in flint at 1,935 feet.

Throckmorton County: Shamrock Oil Co.'s No. 1 McKnight, drilling at 1,080 feet; Young Brothers' No. 1 Steel, drilling in shale at 1,395 feet.

Shackelford County: Kellogg and others' No. 1 Sedwick, drilling in gray slate at 3,900 feet; Magnolia Petroleum Co.'s No. 4 George, drilling at 890 feet; McMahon and others' No. 2 Lynch, showing oil and gas in lime and drilling at 3,610 feet.

Palo Pinto County: Frazier and others' No. 1 Pollard, showing a little oil and gas and drilling at 2,200 feet; Strawn Coal Co.'s No. 2 Fee, drilling in shale at 2,450 feet.

Callahan County: Blair and others' No. 5 Cathey, underreaming at 1,214 feet; Dutton and others' No. 6 Cathey, drilling at 500 feet; Kellogg and others' No. 1 Snyder, drilling in rock at 1,800 feet; Prewitt and others' No. 1 Bailey, drilling in red beds at 1,470 feet; No. 1 Betcher, drilling at 2,290 feet; No. 1 White, drilling at 1,620 feet; No. 1 Windham, setting 10-inch casing at 940 feet.

Mitchell County: Eddleman and others' No. 1 Gist, fishing job at 2,850 feet; Humphreys and others' No. 1 Coleman, fishing for 10-inch casing at 1,965 feet; Morris and others' No. 1 Kynerd, drilling in shale at 1,285 feet.

Brown County: Avery and others' No. 3 Cox, cleaning out after shot with no show of oil at 2,540 feet; Davis and others' No. 1 Newton, are fishing at 500 feet.

Reagan County: Arkansas Fuel Oil Co.'s No. 1 University, repairing boiler at 2,050 feet; Crockett Drilling Co.'s No. 1 University, drilling at 320 feet; Texon Land & Development Co.'s No. 2 University, cleaning out and may drill deeper at 2,930 feet.

PRODUCTION REPORT

Week Ending October 2, 1924

Burkburnett	
Barkley & Meadows	945
Humble Oil & Refining Co.	415
Gulf Production Co.	850
Magnolia Petroleum Co.	3,020
McMahon Oil Co.	400
Panhandle Oil & Refining Co.	300
Prairie Oil & Gas Co.	50
Sinclair Oil & Gas Co.	70
The Texas Co.	505
Texhoma Oil & Refining Co.	420
Miscellaneous	11,185
Total	18,160
Electra	
Empire Gas & Fuel Co.	1,300
Humble Oil & Refining Co.	210
Griswold Oil Co.	200
Gulf Production Co.	965
Magnolia Petroleum Co.	4,145
McMahon Oil Co.	200
Panhandle Oil & Refining Co.	60
The Texas Co.	4,025
Texhoma Oil & Refining Co.	2,090
Miscellaneous	7,375
Total	20,570
Iowa Park, Etc.	
Griswold Oil Co.	65
Gulf Production Co.	35
Humble Oil & Refining Co.	20
Panhandle Oil & Refining Co.	95
Texhoma Oil & Refining Co.	65
Miscellaneous	4,010
Total	4,290
Archer County	
Empire Gas & Fuel Co.	1,640
Griswold Oil Co.	1,290
Gulf Production Co.	270
Humble Oil & Refining Co.	220
Magnolia Petroleum Co.	230
Panhandle Oil & Refining Co.	835
Prairie Oil & Gas Co.	1,425
The Texas Co.	600
Texhoma Oil & Refining Co.	2,200
Miscellaneous	21,190
Total	29,300
Petrolia	
Gulf Production Co.	60
Magnolia Petroleum Co.	25
The Texas Co.	70
Miscellaneous	255
Total	410
Total North Texas	72,730
Stephens County	
Empire Gas & Fuel Co.	105
Gulf Production Co.	1,325
Humble Oil & Refining Co.	1,070
Magnolia Petroleum Co.	810
Mid-Kansas Oil & Gas Co.	1,950
Prairie Oil & Gas Co.	1,150
Sinclair Oil Co.	105
The Sun Co.	460
The Texas Co.	2,050
Texas Pacific Coal & Oil Co.	1,295
Miscellaneous	7,940
Total	18,260
Eastland County	
Gulf Production Co.	360
Humble Oil & Refining Co.	100
Magnolia Petroleum Co.	520
Panhandle Oil & Refining Co.	430
Prairie Oil & Gas Co.	680
Sinclair Oil & Gas Co.	500
The Texas Co.	365
Texas Pacific Coal Oil Co.	890
Miscellaneous	3,075
Total	6,920
Other Fields	
Strawn—	
Texas Pacific Coal & Oil Co.	290
Miscellaneous	530
Total	820
Morran—	
Empire Gas & Fuel Co.	105
Humble Oil & Refining Co.	395
The Texas Co.	150
Texhoma Oil & Refining Co.	150
Miscellaneous	2,330
Total	3,130
Coleman County—	
Miscellaneous	130 130
Brown County—	
Miscellaneous	675 675
Comanche-Eastland—	
Humble Oil & Refining Co.	210
Magnolia Petroleum Co.	1,010
Prairie Oil & Gas Co.	195
Sinclair Oil & Gas Co.	60
The Texas Co.	210
Texas Pacific Coal & Oil Co.	130
Miscellaneous	4,430
Total	6,245
Young County—	
Gulf Production Co.	85
Sinclair Oil & Gas Co.	390
Panhandle Oil & Refining Co.	170
The Texas Co.	85
Miscellaneous	3,050
Mitchell County	1,645
Reagan County	5,710
Jack County	35
Scurry County	15
Carson County	1,255
Hutchinson County	80
Total	12,490
Total Central Texas and Panhandle	48,670
Total this week	121,400
Total last week	122,860
Loss	1,460

News from Fields of Canada

By Victor Lauriston

CHATHAM, Ont., Oct. 4.—In the Irma-Wainwright Field, east central Alberta, Maple Leaf Oil & Gas Co.'s No. 1, Section 24-45-8w-4, which struck gas at 1,775 feet has been drilled into the sand. It is a good gasser in this horizon, with probably better than 5,000,000 feet a day. The drill stem has been removed and the control head put on. Some oil is reported with the gas, but the quantity appears to be small. Maple Leaf No. 2 is rigging up on the same section and the outfit used at No. 1 will be moved to the new site.

British Petroleums' No. 4, Section 30-46-6w-4, has also been brought in, and is flowing slowly into the big sump. It is said the well is making 50 bbls. a day or a little more under gas pressure, though it is claimed it will be 200 bbls. when put on the pump. The production is an asphaltic crude, showing a gravity test of 18.6 degrees, being four points better than British Petroleums' No. 2, the discovery well. British Petroleums' No. 3 is working to shut off the water and get the well into shape for a capacity test. A pump is being brought in for use with either No. 2 or No. 4 well. No. 5 will be drilled this fall, and the company may run two tests through the winter.

Wainwright Oil Producers Syndicate, Section 36-44-7w-4 is drilling. Western Consolidated Oils, Section 20-45-6w-4, is going down rather slowly. Wainwright Dome Oil Co. has been organized by Edmonton and Wainwright business men to test 2,000 acres in the Irma-Wainwright Field. The company will operate under a Dominion charter, J. L. Gerow, of Wainwright, being secretary.

In the process of getting the Gratton Oil Co.'s burning gasser, southeast of Irma, under control, the Imperial Oil men have blown off the cap and the damaged casing head, as a preliminary to further efforts to extinguish the fire, which has been burning for several weeks.

In northern Alberta territory has been leased in the vicinity of Fort Vermilion and Vermilion Chutes, on the Upper Peace River, by a Calgary syndicate represented by S. E. Slipper, formerly of the Geological Survey of Canada. This area was tested by the D. A. Thomas, (Lord Rhondda interests) in 1915, but owing to drilling difficulties work was discontinued before conclusive results were secured. It is claimed some traces of oil and gas were met in the test which was carried down about 800 feet, salt water also being encountered.

In Peace River district, investigations were recently made by Messrs. Elworthy and Hofford of the Geological Survey of Canada, who secured samples of oil and gas from a number of wells, for testing purposes.

A. M. McQueen, vice president of Imperial Oil, Ltd., in charge of the production department, recently visited Calgary and inspected some of the drilling operations carried on by his company in southern Alberta. Discussing the British Petroleums, Ltd. strike in the Irma-Wainwright Field, Mr. McQueen stated his company had drilled two wells in the Wainwright area about 6 miles east of the reported British Petroleums' producer, but had no plans at the present moment for additional drilling in that area.

In the boundary field, Imperial Oil, Ltd. recently spudded in its Dead Horse Coulee No. 2 test, about 35 miles east of Coutts and about 1½ miles north of the Canadian Oil & Refining (Rogers-Imperial) No. 1 gasser on Section 29-1-11w-4. A heavy rotary outfit is being used for this test, making over 100 feet the first day. The test started with a 20-inch hole and 15½-inch casing was set at 110 feet. The new well on Rice Creek, about 40 miles west of Nanton, in the Willow Creek district, and about 5 miles from the dry hole previously drilled in the Willow Creek Field, is making steady progress and is now drilling at over 700 feet. This test also started with a 20-inch hole, in which 15½-inch casing will be set.

In the Okotoks Field, southwest of Calgary, Royalite No. 4 deep test, on

(Continued on Page 212)

Oklahoma Field Operations

By C. D. Lockwood

Papoose Field extension well of T. B. Slick's was deepened to total of 7 feet in sand and made 2,775 bbls. in 24 hours; while old well in northeast trend finds 77 feet of sand; Cromwell apparently defined; Wewoka Field has 1,000-bbl. well in Sykes sand; all principal fields except Papoose decline.

Further evidence that a new field of major importance is probably in the making was furnished during the past week when T. B. Slick again deepened his No. 1 Sand, SW cor. SE, Section 35-10-9, the well that started a lot of new work in a northeasterly direction from the original Papoose Pool, extending the producing area across the Hughes County line into Okfuskee County. After deepening 1 foot to a total depth of 7 feet in sand topped at 3,326 feet, production jumped to 2,775 bbls. in the 24 hours ended Monday morning at 7 o'clock.

Another indication of the probable greatness of this northeast extension is given by the Papoose Oil Co.'s No. 6 in the SW cor. NE SE, Section 4-9-9, an old well which was making about 200 bbls. and which was deepened with the Wilcox horizon as its objective. Sand in this well was topped at 3,318 feet and the deepening proved that the sand body at that location is 77 feet thick, the bit passing out of it at 3,395 feet. It was still going ahead at 3,500 feet. While the northeast part of the field may prove to be as freakish as the other areas in Township 9-9, the presence of such a substantial body of sand in that direction indicates that it also may prove to be entirely different.

Wewoka Surprise

The week's biggest surprise developed in the Wewoka Field, where the Shaffer Oil & Refining Co. brought in a well yielding 1,620 bbls. in the first 20 hours from the Sykes sand at 3,200 feet and drilled only 10 feet in. Sunday's gauge read 1,178 bbls. and Monday's 1,068 bbls. It was the company's No. 1 Jones, in the NW cor. SW NW, Section 32-8-8. Same company's No. 2 Jones, C NW NW NW, same section, was shut down for additional tankage at 3,212 feet, making 220 bbls. from the regular Wewoka horizon.

Interest in the Davenport district of Lincoln County, where the Flynn & Morgan well which was purchased by the Magnolia Petroleum Co. for $375,000, was still making about 240 bbls. daily, was heightened during the week when the Magnolia's No. 1 Bray, NW cor. SW SE, Section 18-14-5, got a show of oil in the Peru sand topped at 3,631 feet. Seven feet deeper, however, the drill went into water which filled the hole. The company was preparing to deepen the discovery well in the SW cor. SE, Section 34-15-5, in the hope of increasing its production. Among the new work started in this vicinity was the Magnolia's No 1, NW cor. NE, Section 3-14-5, for which a rig was being built, and the same company's No. 1, C SW NW NE, same section, which had a rig on the ground. The The Prairie Oil & Gas Co. also had a rig up for its No. 1 Stout, NE cor. NW, same section.

Cromwell Defined

The Cromwell Field has apparently been defined at last on practically all sides as the Laurel Oil & Gas Co.'s No. 1 Fixico, C SE SW NW, Section 4-10-8, was making only 10 bbls. an hour Sunday from 12 feet of sand topped at 3,412 feet. However, predictions about the Cromwell Field have a bad habit of being completely upset by deeper drilling, and a later report on this well will be found elsewhere in this issue as it was being deepened Monday afternoon.

The Tidal-Osage Oil Co.'s No. 1 Bruner, C NE NW NE, Section 17-10-8, on the west flank of the field, was swabbing nearly all water. Total depth was 3,547 feet.

Several comparatively small producers were brought in during the week, but the list included one immense gasser. It was the Kingwood Oil Co. & Sinclair Oil & Gas Co.'s No. 1 Berryhill, C SW SW NW, Section 10-10-8, which was producing 100,000,000 feet of gas daily and 45 bbls. of oil an hour from sand at 3,369-3,479 feet. Top of the oil pay was at 3,439 feet. The Carter Oil Co.'s No. 1 Brown, SW cor. NE SW, Section 10-10-8, produced 1,005 bbls. from total depth of 3,528 feet. The Kingwood Oil Co.'s No. 2 Berryhill, SE cor. SW NE, Section 10-10 8, topped the sand at 3,362 feet and was running the 6-inch casing. It had a show of gas. Same company's No. 4 Berryhill, NE cor. SW NW, same section, was on top of the cap rock at 3,296 feet. The Pure Oil Co.'s No. 2 Bruner, SE cor. SW SE, Section 9-10-8, made 197 bbls. from sand topped at 3,420 feet, the oil pay having been found at 3,455-78 feet. Same company's No. 4 Bruner, SW cor. SE, same section, made 20,000,000 feet of gas from sand at 3,416-25 feet and 117 bbls. of oil from sand at 3,439-77 feet.

The newest well in the Tonkawa Field's list of deep sand producers was the Pennok Oil Co.'s No. 2-D Endicott, SW cor. SE SE, Section 34-25-1w. At total depth of 4,184 feet in sand reached at 4,177 feet, it made 1,475 bbls. It was to be drilled deeper, of course. T. B. Slick's No. 2-E Endicott, NW cor. SW SW, Section 35-25-1w, was making 535 bbls. from oil sand at 3,974-83 feet, but was likewise not completed. The Comar Oil Co.'s No. 1-W Ogg, SW cor. SE, same section, was still drilling in shale at 4,197 feet.

Production in Tonkawa

Daily average production in the Tonkawa Field for the week ended September 30 was as follows:

Company—	Wells	Bbls.
Amerada Petroleum Corp.	35	1,779
Blackwell Oil & Gas Co.	30	4,252
Carter Oil Co.	5	179
Champlin Refining Co.	2	12
Champlin Refining Co. & Twin State Oil Co.	1	27
Comar Oil Co.	339	51,126
Cosden Oil & Gas Co. and Marland Refining Co.	18	335
Gypsy Oil Co.	97	12,842
Healdton Oil & Gas Co.	27	1,532
Wentz Oil Corp.	44	13,145
McMan Oil & Gas Co.	1	5
Pennok Oil Co.	30	8,828
Phillips Petroleum Co.	2	93
Prairie Oil & Gas Co.	12	490
Sinclair Oil & Gas Co.	1	16
T. B. Slick and Comar Oil Co.	33	9,274
Southwestern Petroleum Co.	15	586
The Texas Co.	5	59
White Eagle Oil & Ref. Co.	7	162
Total	704	107,107
Total last week	703	108,749
Difference	1	1,642

Deep Sand Production

Pennok Oil Co., Endicott	5	7,491
Comar Oil Co., Beverlin	1	3,791
Comar Oil Co., Carmichael	3	6,277
Comar Oil Co., L. Endicott	3	6,919
Comar Oil Co., E. Endicott	4	17,067
Comar Oil Co., Gaume	1	5,829
Gypsy Oil Co., Shawver	4	10,682
T. B. Slick & Comar Oil, L. Endicott	5	7,479
Blackwell O. & G., cDaniels	1	3,081
Wentz Oil Corp., McKee	2	11,286
Amerada Petroleum Corp., Woods	1	3,061
Total	32	82,962
Total last week	31	82,325
Difference	1	637

Total deep sand production to September 30 was 4,152,000 bbls.

Daily average pipe line runs from the field during the week were as follows: Kay County Gas Co., 31 691 bbls.; Ozark Pipe Line Co., 23 744 bbls.; Gulf Pipe Line Co., 14.234 bbls.; Champlin Refining Co., 18.300 bbls.; Bolene Refining Co., 1 238 bbls.; Globe Refining Co., 3.252 bbls.; Moore Refining Co., 3.975 bbls.; Producers & Refiners Corp., 490 bbls.; End Oil & Pipe Line Co., 1,630 bbls.; Oklahoma Pipe Line Co., 179 bbls.; Empire Pipe Line Co., 1.606 bbls.; Golden Rule Refining Co., 1.829 bbls.; Prairie Pipe Line Co., 1,104 bbls.

Burbank Production

Daily average production in the Burbank Field for the week ended September 30 was as follows by companies:

Company—	Wells	Bbls.
Carter Oil Co.	211	14,024
Comar Oil Co.	7	200
Cosden Oil & Gas Co.	105	3,948
Devonian Oil Co.	16	258
Gardner Petroleum Co.	20	517
Gypsy Oil Co.	196	6,649
Kewanee Oil & Gas Co.	25	666
Laurel Oil & Gas Co.	16	287
Lorraine Petroleum Co.	15	184
Midland Oil Co.	37	2,141
Mid-Kansas Oil & Gas Co.	39	1,890
Peters & Oliphant	2	200
Phillips Petroleum Co.	85	9,345
Phillips Petroleum Co. and Delmar Oil Co.	16	1,896
Phillips Petroleum Co. and Skelly Oil Co.	173	6,410
Prairie Oil & Gas Co.	106	3,211
Producers & Refiners Corp.	29	540
Roxana Petroleum Corp.	57	850
Simons, Moore et al	29	269
Sinclair Oil & Gas Co.	145	3,743
Skelly Oil Co.	21	1,261
Tidal-Osage Oil Co.	43	902
The Texas Co.	3	436
Twin State Oil Co.	24	1,583
Total	1,420	61,411
Total last week	1,412	61,680

Kay County Extension

George S. Bole	3	597
Carter Oil Co.	11	1,471
Comar Oil Co.	19	1,233
Cosden Oil & Gas Co.	16	1,451
Gypsy Oil Co.	19	844
Laurel Oil & Gas Co.	5	563
Phillips Petroleum Co.	31	3,474
Mid-Kansas Oil & Gas Co.	10	1,144
Prairie Oil & Gas Co.	4	341
Pure Oil Co.	5	264
Roxana Petroleum Corp.	8	397
Dye, Tomlinson et al	8	637
Skelly Oil Co. and Phillips Petroleum Co.	20	476
Sinclair Oil & Gas Co.	6	532
The Texas Co.	16	402
Twin State Oil Co.	15	944
Total extension	195	14,770
Total last week	192	15,584
Difference	3	814
Total Burbank	1,615	76,181
Total last week	1,604	77,264
Difference	11	1,083

Daily average pipe line runs from the Burbank Field follow: Gulf Pipe Line Co., 9.184 bbls.; Cosden Pipe Line Co., 7.041 bbls.; Kay County Gas Co., 6 549 bbls.; Osage Pipe Line Co., 1.077 bbls.; Oklahoma Pipe Line Co., 22 822 bbls.; Prairie Pipe Line Co., 4.296 bbls.; Sinclair Pipe Line Co., 4,275 bbls.; Moore Refining Co., 1.705 bbls.; Standish Pipe Line Co., 11.183 bbls.; Empire Pipe Line Co., 813 bbls.; Mid-Kansas Oil & Gas Co., 3,080 bbls.; Twin State Oil Co. 2.374 bbls.; Ozark Pipe Line Co., 1,782 bbls. Total, 76 181 bbls.

Total Burbank storage on September 30 was 12,973 645 bbls.

New Field Drop

All of the principal new fields of the State reported a drop in production during the week ended September 30, with the single exception of the most recent addition to the major class, the Gilcrease-Papoose Pool in Hughes County, which barely held its own, the average for the past week having been 15,518 bbls. daily or a gain of 68 bbls. over the previous week's figures. The number of producing wells remained the same at 52. The Wewoka Field reported a loss of 12[illegible] bbls., the average having been 6,758 bbls. for the week from 76 wells, including [illegible] new ones. The Cromwell Field slumped further to 40,649 bbls., a drop of 1,[illegible] bbls. daily, although 6 new producers were brought in.

Burbank Field

The Carter Oil Co.'s No. 2, CSL SW SW NE, Section 13-27-5, Burbank Field, made 115 bbls. natural from oil sand at 2,955-3,001 feet and after a shot of 125 quarts increased to 450 bbls. The same company's No. 7, C NE SW NE, same section, increased from 50 bbls. natural to 360 bbls. after a 90-quart shot in sand at 2,970-3,006 feet; No. 8, CWL NW SW NE, was a 145-bbl well after it was shot with 120 quarts from 2,[illegible] 3,005 feet; No. 8, CWL NW SW NW, same section, jumped from 50 bbls. to [illegible] bbls. when treated to a 90-quart shot [illegible] 2,989-3,025 feet.

The Phillips Petroleum Co.'s No. 1, CSL SW SE NE, Section 14-27-5, was shot with 130 quarts from 3,006-58 feet and increased from 100 bbls. to 250 bbls. as a result. The same company's No. 1, CWL NW SW NE, same section, was a 250-bbl. well after shooting with 100 quarts from 2,997 to 3,041 feet; No. 12, NW cor. NE, same section, made only 30 bbls. after a 90-quart shot at 3,006-[illegible] feet. Rigs were up for Nos. 11 and 13 and Nos. 12 and 16 are drilling at 750 and 660 feet respectively, all four being in the NE NE.

The Cosden Oil & Gas Co.'s No. 5, CSL SW SE SE, Section 17-26-6, topped the sand at 2,887 feet and at total depth of 2,957 feet was shot with 130 quarts, resulting in an increase from 100 to 300 bbls.

The Carter Oil Co.'s No. 6 Lyman, CWL SW NW NW, Section 11-27-5, increased from 735 bbls. natural to 900 bbls. after a 40-quart shot in sand at 2,950-3,000 feet, with first oil at 2,960 feet. Same company's No. 8 Lyman, C SE NW NW, same section, was shot with 110 quarts, resulting in 1,025 bbls., whereas the natural production had been only 415 bbls. from sand at 2,955-3,01[illegible] feet, with first oil at 2,970 feet. The Carter's No. 9 C NE SW NW, same section, was drilling at 2,870 feet, and No. 10 Lyman, C NW SE NW, same section, at 2,730 feet, and a rig was up for No. 12, C SW NE NW, same section.

The Phillips Petroleum Co.'s No. 2, CSL SW SE NE, Section 18-27-5, found oil at 2,935-93 feet, and filled up 1,500 feet in the hole natural. After a shot of 120 quarts, the well made 120 bbls. Same company's No. 4 SE cor. NE, same section, was good for 100 bbls., following a 130-quart shot in oil sand at 2,955-[illegible] feet.

The Texas Co. had a 360-bbl. well in its No. 2, CSL SW SE NW, Section 18-27-6, following a shot of 140 quarts in sand at 2,925-75 feet, total depth being 2,977 feet.

Osage County

In Osage County, the Edith Oil Co.'s Smith's No. 7, CNL NW SW, Section 27-29-11, was shot with 120 quarts and made 5 bbls. from the Peru sand at 90-45 feet. The Beacon Oil Co.'s No. 1, CWL SW SE, same section, made 120 bbls. after a 200-quart shot in the same sand at 953-99 feet.

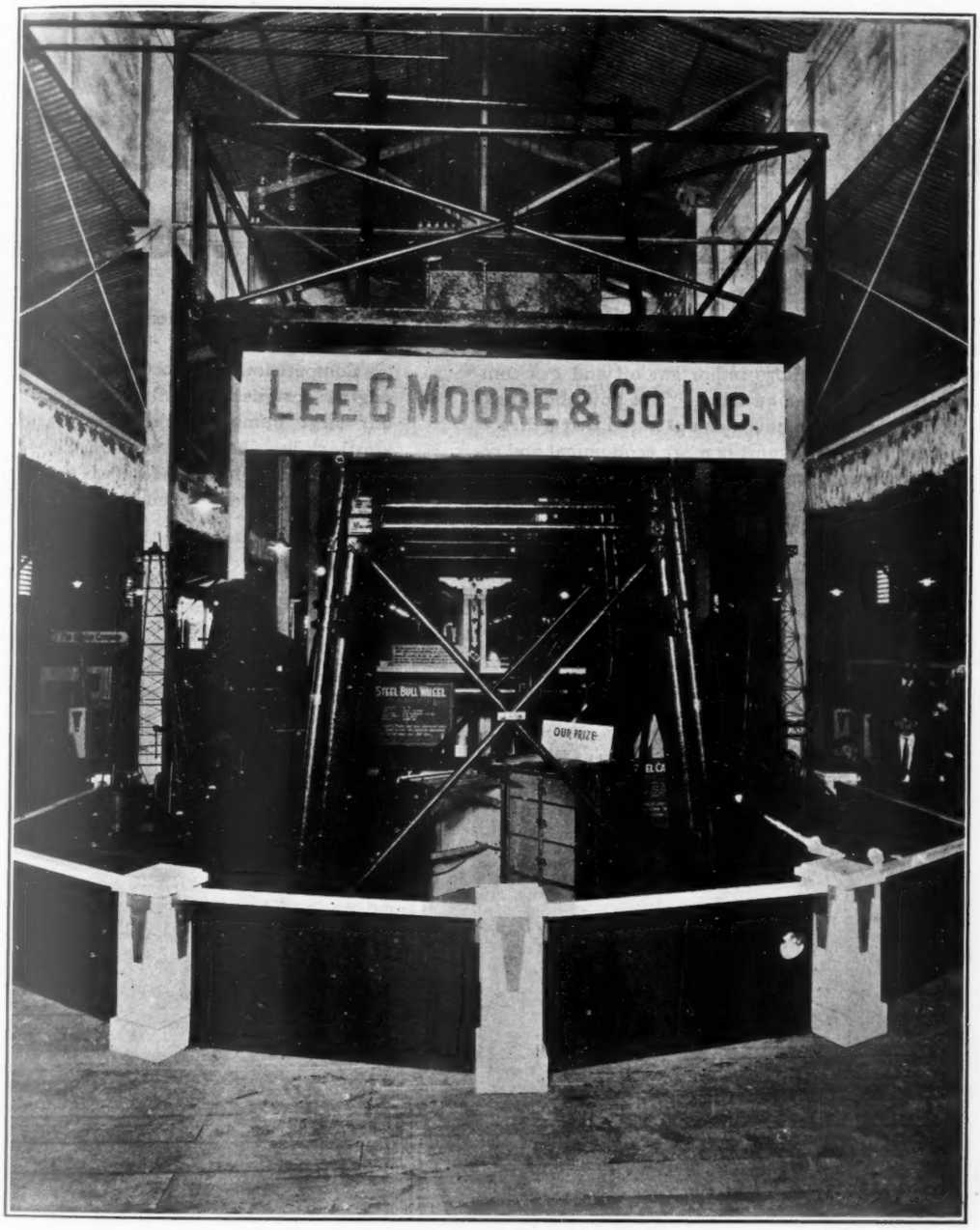
The Knupp Oil Co. was spudding in No. 1, NE cor. Section 10-26-11, with a machine. The same company's No. 1, NW cor. same section, was a 4-bbl. well after an 80-quart shot in the Bartlesville sand at 1,638-63 feet.

Foster & Davis shut down their No. 36, CNL NW NE SW, Section 36-25-[illegible] at 2,415 feet with 1,400 feet of oil in the hole.

The I. T. I. Oil Co. abandoned its No. 31, CWL NW NE NE, Section 36-25-12, as dry at 2,056 feet. It was an old well.

The Superior Oil Corp.'s No. 3, CNL SE SW, Section 3-23-8, two locations west of the same company's Wilcox sand discovery several months ago, found the green shale at 2,485-90 feet and the pay at 2,500-42 feet, but it was good for only

(Continued on Page 76)



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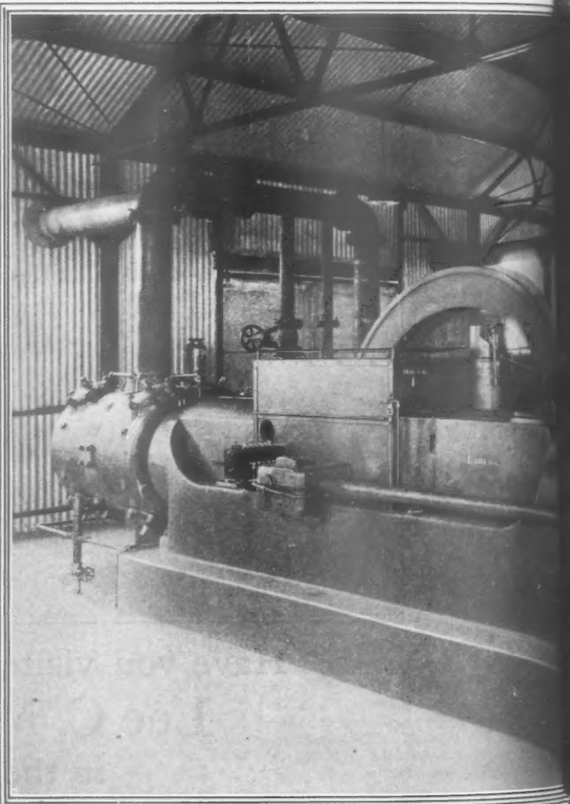
Fred Thomas Says the Coope Po Continually Better Engin an

An enthusiastic user of our Engines was congratulating us on the number of successful installations we have made for the more important oil and gas companies this year when he asked: "But how about next year? Now that you have demonstrated that a direct-connected, four-cycle unit is more economical and reliable and have educated the trade to want it, your competitors also are bringing out new four-cycle models. Several of them have even copied some of your designs."

Competition will no doubt be keener because gas engine designs generally are growing better. But our large number of key installations are demonstrating, first hand, how good Cooper Gas Engines really are and how sincere we are in our efforts to give good service. Then, too, our 80 and 160 B.H.P.



Fred Thomas, Vice President, in charge of sales, wrote this message on a scrap of paper the night before he left for a four-day vacation—his first in five years. Those of you who have contacted with Fred's clean-cut and sincere sales methods will know that this isn't "bunk."

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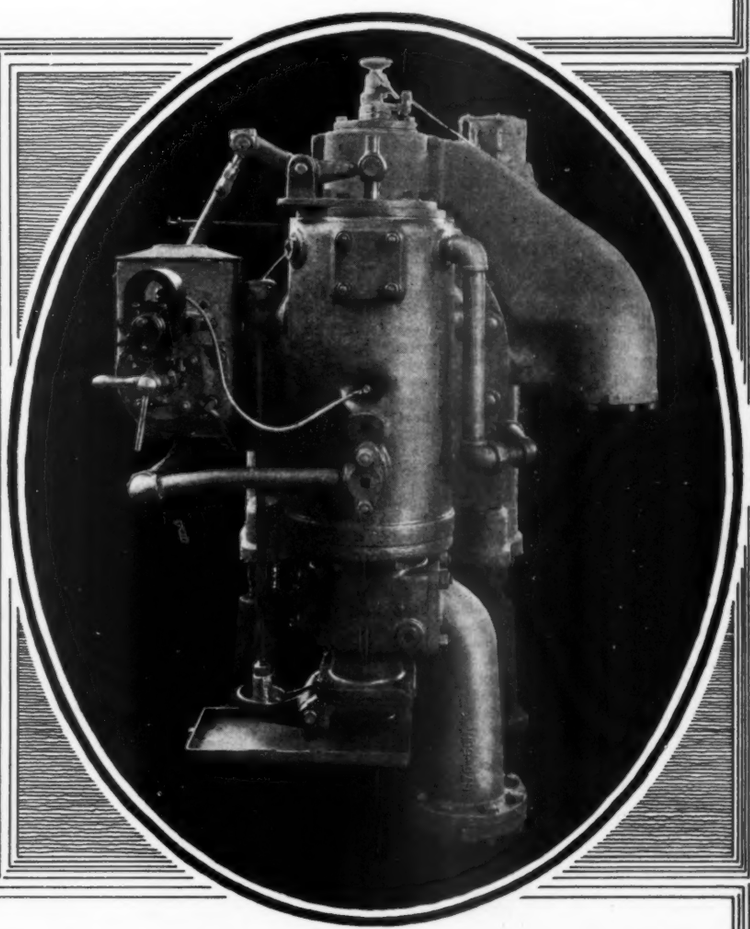
units will be six years old, which means we have had time to perfect our designs. We had built large four-cycle, double-acting Gas Engines for a great many years and thought we could build a new and smaller design about right the first time—but perfection in machinery design of any kind, especially an internal combustion engine, isn't attained in a day, or a year. In fact, it takes several years of operation, under various field conditions, to work the "bugs" out of an engine. It also takes time for a machine shop, no matter how efficient it may be, to learn to build a new type of engine well.

With this experience to our credit and the host of enthusiastic Cooper boosters in every field in the country, we are prepared to give the oil and gas industry a better engine at a lower price and follow it with even better service after it is installed.



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The Roxana Petroleum Company chose four Cooper 160 B.H.P. gas engines, driving 17½" diameter Cooper Compressors for their last compressor station built at Stroud, Oklahoma. The Roxana Company is justly proud of the layout of this plant and are especially pleased with its operation. The center photograph shows the station interior.

The oval above shows a close-up of the power end of a Cooper 80 B.H.P. engine.

California Field Operations

By L. P. Stockman

Opening of new field, wildcatted unsuccessfully for years, at Baldwin Hills, near Inglewood, feature of week. Standard's No. 1 pumps 165 bbls. at 2,134 feet. Shell Co. completes biggest well in Dominguez Field, No. 11 Reyes, estimated 5,000 bbls. Only four producers at Rosecrans, but 50 more drilling.

LOS ANGELES, Cal., Oct. 4.—The outstanding feature of the week in California was the opening up of a new field by the Standard Oil Co. in the Baldwin Hills near Inglewood, within a few miles of Los Angeles. The company's initial producer, well No. 1 on Los Angeles Investment Lease No. 1, is located on property leased from the Los Angeles Investment Co., a local realty concern. The discovery well, a comparatively shallow one, finished at 2,134 feet, is today pumping 165 bbls. of 18.4 gravity oil which cuts 3 per cent. The small showing of heavy oil which this well revealed several months ago when around 1,100 feet was responsible for the large cash bonus of $500,000 paid for an additional lease from the same company. A test of the oil sand found at this depth, however, did not result in production and for some time it looked like the Standard had picked a lemon. The company continued drilling, however, and the discovery well in this new field, which will probably be known in the future as the Baldwin Hills Field, rewarded its efforts.

This particular area has for several years been looked upon with favor as a possible reservoir for oil and many dry holes have been drilled in the immediate vicinity. The Standard's operations, in addition to the discovery well just finished, consist of well No. 2 on the same lease, which is standing suspended at 1,050 feet, and another well on lease No. 2, which is drilling ahead at 4,015 feet. The many deep holes which have been put down in the immediate area indicate that the field will be a small one, unless, of course, the sand has been muddied off and passed up. Several years ago, the Standard drilled two holes about a half a mile north and east of the discovery well, one to a depth of 5,010 feet and the other to 5,172 feet, both of which, known as the Cienega wells, were dry. A little north of the Cienega property, the Associated Oil Co. has drilled No. 1 Baldwin to 6,757 feet without noting anything more than a few slight showings. The Associated's geologists were so certain that production existed in the immediate area that the company took over the 57 Petroleum Co.'s hole a quarter of a mile to the west and carried it to 4,837 feet before suspending operations and returning it to the latter as dry.

May Limit Field

Over five years ago, in 1919 to be exact, the Bartolo Oil Co. drilled a dry hole approximately one mile southeast of the discovery well to a depth of 4,500 feet and abandoned it at this point. These four deep dry holes to the north of the Standard's two Los Angeles Investment leases, and the Bartolo hole to the south, practically limit the field to about 1 mile in area, as far as the northern and southern limits go. It is possible, however, and quite probable in view of the gas showings which the Mohawk Oil Co. has just found at 1,637 feet, that the field extends some distance northwest of the discovery well. The Standard's two Cienega wells and the Associated's No. 1 Baldwin were to the north and east of the discovery well, while the 57 Petroleum Co.'s hole was nearly due north. The Mohawk's present wildcat is northwest of the Standard's present operations and, since a great majority of the fields in California run in a northwesterly-southeasterly direction, it is quite possible the field will be larger in area than present indications. The probable limits and productivity of the field, however, are at present only a matter of conjecture. If the field extends over considerable area it should be a profitable one, since only a small amount of casing will be required and wells can be finished in fast time.

It is interesting to note that at the recent meeting of the California members of the Association of Petroleum Geologists, held in Los Angeles, considerable discussion took place following the reading of A. J. Tieje's paper on "Notes on Geology of the Baldwin Hills Region." Doctor Tieje, who is connected with the local museum, spent considerable time in tracing the fault of this region while the Los Angeles outfall sewer was being constructed. The fault, which is known to exist in this area, has been a topic for discussion for several years.

Wildcatted for Years

The Standard's success in finishing well No. 1 on Los Angeles Investment Lease No. 1 illustrates very closely how it is possible to punch down holes all around a potential oil field and yet miss it. This general vicinity, the Inglewood-Hawthorne area, has been wildcatted for several years, and, although several gas pockets have been struck, especially in the Hawthorne district nearby, the oil was not present. The narrow margin by which many of these holes missed production recalls the operations of the Union Oil Co. in the Long Beach Feld several years ago. Recent developments in that field show the Union drilled less than one half mile away from the present outer limits of the district. Then, too, it will be remembered the Union drilled and finished several small producers on its Meyer lease in the present Santa Fe Springs Field before its then wildcat, No. 1 Bell, which later proved to be in the center of the district, was finished. Several years ago, in 1917, the Standard and General Petroleum Oil Companies drilled in the present Dominguez area without success. The Standard carried its test in the southern part of the field to 5,005 feet without success. The General Petroleum in the meantime was marking time pending the drilling of the Standard's wildcat and pulled out when the Standard abandoned its hole as a dry one. The General Petroleum only carried its test to 1,622 feet. Had the company carried its hole down another 2,000 feet, it would have brought in a producer, as the company's location was but a few hundred feet from the Union Oil Co.'s present No. 1 Carson, an unusually good well. In the same year, the Highland Development Co. drilled a wildcat to 3,651 feet, midway between the General Petroleum's test and the Standard's dry hole. Had the Highland gone on another 500 feet it would have had the honor of opening up this excellent field, as the territory in which it was located, now the Shell's Reyes lease, has been proven to be the most productive in the field.

Rosecrans

Although oil was discovered in the Rosecrans Field around the first of the year by the Union Oil Co., and the first successful producer completed five months ago, there are at present only four wells actually finished and on production. Fifty more, however, are drilling and several will probably be tanking oil within 30 days. Most of them will probably be in the proven area in the southern part, although a few others a short distance north of this shallow zone look favorable for production in the deep sands. In the area between the shallow zone production in the southern part of the field and the Union's deep sand producer in the north, the Associated's No. 1 Brockley and the Barnsdall Oil Co.'s No. 1 O'Dea look good for production. No. 1 O'Dea is standing cemented in a reported oil sand at 4,683 feet, while the Associated's No. 1 Brockley, a little to the south, cored an oil sand at 4,90[illegible] feet and will probably set casing within the next few days. In addition to No. 1 Brockley, the Associated has four other holes drilling in various parts of the field. No. 1 Haviland shows 3,960 feet of hole, while on the Higgins lease, in addition to No. 1, a producer, the company is going ahead in a second hole at 3,461 feet. The company's No. 1 Wanis recently taken over from George F. Getty, is drilling ahead at 3,248 feet, while No. 1 Hoge is making hole at 3,530 feet. The Barnsdall has rigs up for Nos. 2 and 3 on the O'Dea lease and a rig and driller, No. 2, on the Rosecrans property at 2,890 feet. The General Petroleum is getting quite deep with No. 1 American in the southwestern part of the field and shows 5,204 feet of hole. No. 1 Vaughn, in the central part of the district and more favorably located, is standing cemented at 4,752 feet. The Bankline Oil Co., in which several General Petroleum officials are interested, drilled No. 1 Gordon to 4,698 feet and cemented a string of 8¼-inch. The operations of E. J. Miley and the Marland Oil Co. consist of six holes at various depths. Miley's No. 1 Athens is going ahead at 4,129 feet, while his No. 2 is making hole at 3,202 feet. The Marland's four wells, all in proven territory, are drilling ahead, No. 1 at 3,49[illegible] feet, No. 2 at 3,475 feet, No. 3 at 3,12[illegible] feet and No. 4 at 2,570 feet. The Pacific Petroleum started its second test and shows 826 feet in well No. 2. The company's No. 1, formerly Morrison's Swesey well, is redrilling at 4,110 feet, the bottom of the hole being 4,510 feet. On the Maxwell lease, the Superior Oil Co. is drilling two holes, No. 2 at 3,3[illegible] feet and No. 3 at 3,308 feet. No. 1 Van Nuys, drilled to 3,539 feet, is standing cemented.

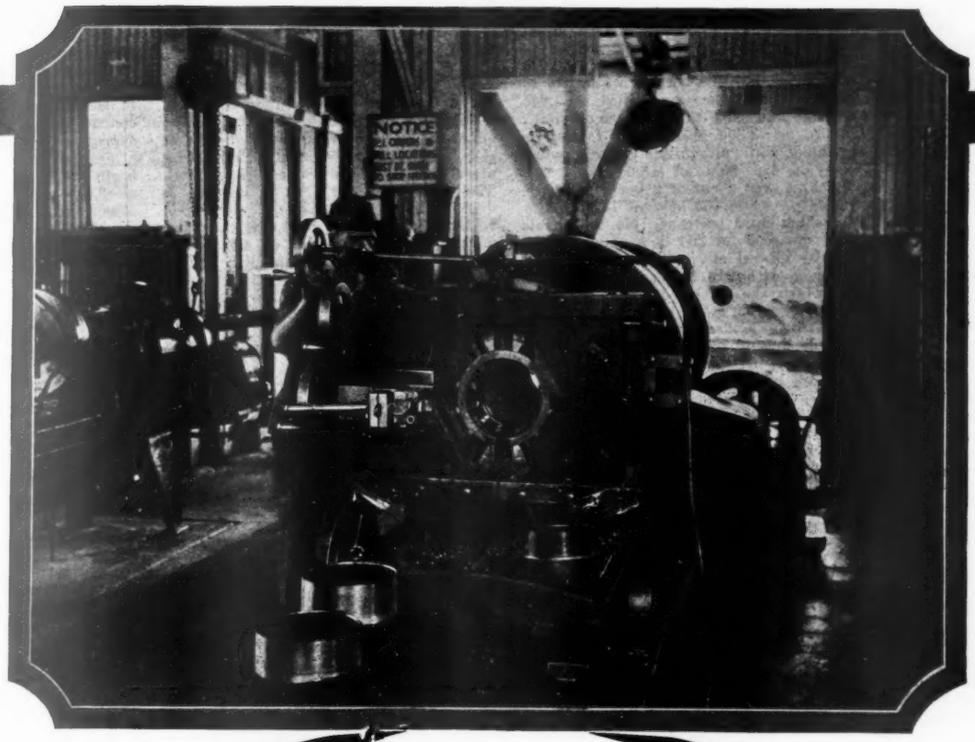
Picked Up Sand

The U. S. Royalties made the extreme southern part of the field look a little better by picking up a nice looking sand in No. 23 at 4,739 feet. As the result of the showing, a string of 8¼-inch has been landed. In the extreme northern part of the field, the Pan American is going ahead in No. 1 Anderson at 2,9[illegible] feet, while the Shell is making hole in No. 1 Leonis at 3,507 feet, following a negative core. The Standard's No. 1 Cowan in the eastern part of the field shows 4,548 feet of hole and, although a string of 8¼-inch is being run in, it is reported to be a protective measure only, as no showings have been encountered to date. The St. Helens Petroleum in the southern part of the district is still held up with a fishing job in No. 1 Rowell at 4,559 feet. R. W. Perkins, inventor of the Perkins process for cementing wells, has decided to enter the producing game and is building a rig for his first adventure. The Sentinel Oil Co.'s No. 1 Athens, in the northern part of the field, has proven a keen disappointment to those who anticipated a continuation of the Athens structure to the north. The well has passed the 5,000-foot level and, although it cannot yet be classified as a dry hole, it disproves the contention that production would be picked up higher on the structure than the Union's No. 1 Howard Park, which is producing from 4,977 feet. The failure of this hole to develop production resulted in the suspension of operations by C. C. Julian in No. 1 Athens at 4,596 feet and well No. 9 at 4,779 feet. The Petroleum Midway (California Petroleum) is drilling ahead in No. 1 Colby at 1,637 feet but is held up with a fishing job in No. 1 Ducommon at 3,394 feet. The Union ran into an extremely hard formation at 4,93[illegible] feet in No. 1 Trust and for the past few days has been unable to make any hole. No. 2 Trust in the eastern part of this property is drilling ahead at 2,120 feet. On the Rosecrans lease, the Union has fishing jobs in No. 2 at 4,101 feet and No. 3 at 3,835 feet. No. 4 is going ahead at 2,540 feet, while No. 5 is still standing cemented at 1,195 feet. An attempt is still being made to clean out well No. 1 at 4,041 feet. No. 1 Chandler and No. 1 Padelford have been cemented in a brown shale streaked with an oil sand, the former at 3,897 feet and the latter

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Following is a list of tankers, date departed, destination, kind of cargo and amount in barrels:

Fred W. Weller, September 27, New York, crude	109,722
Robert E. Hopkins, September 27, New York, crude	70,659
H. C. Folger, September 28, Philadelphia, refined	75,876
Durango, September 28, New York, crude	75,967
Imlay, September 28, New York, crude	72,714
Coastwise	
U. S. Tanker Cuyama, September 22, San Francisco, fuel	35,430
Montebello, September 22, Martinez, crude	77,258
K. R. Kingsbury, September 22, Richmond, crude	84,898
Mericos H. Whittier, September 23, Avon, crude	68,142
Cathwood, September 24, Martinez, crude	75,736
D. G. Scofield, September 24, Richmond, fuel	77,961
Richmond, September 25, Portland, fuel	65,601
W. S. Miller, September 26, Richmond, crude	75,961
Alden Anderson, September 26, Avon, crude	65,059
El Segundo, September 27, Alaska, refined	30,833
Capt. A. F. Lucas, September 27, Point Wells, refined	36,139
Exports	
El Grillo (Br.), September 23, Vancouver, crude	66,900
Calgarolite (Br.), September 23, Chile, fuel	74,416
Gold Shell, September 25, Japan, fuel	55,030
Kiyo Maru (Jap.), September 27, Japan, fuel	70,881
Natica (Br.), September 28, China, refined	55,570
India Arrow, September 28, Japan, fuel	86,462
Yorba Linda, September 28, England, refined	75,864
Lubrico, September 28, Honolulu, fuel	83,159
From San Francisco	
Java Arrow, September 22, Shanghai, refined	82,473
Charlie Watson, September 23, Eureka, refined	16,911
Wattertown, September 26, Boston, refined	70,059
Montebello, September 26, Vancouver, fuel	73,641
La Purisima, September 26, Portland, refined	31,888
Los Alamos, September 26, Portland, refined	43,227
Tejon, September 27, Astoria, fuel	54,716
From Port San Luis	
Deroche, September 24, Oleum, crude	71,962
Oleum, September 23, Coos Bay, fuel	33,142



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Pipe threading equipment that gets your okey on threading new pipe frequently fails to come through with 100% performance under the gruelling service of maintenance work.

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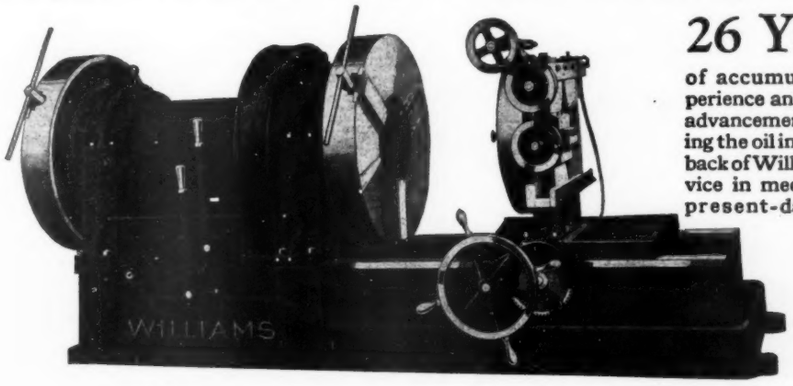
Such equipment keeps on paying dollar dividends long after it has been written off your books.

The best proof of the capacity of Williams' Pipe Threaders to deliver stamina and service is found in those maintenance shops where Williams' Machines have been serving day in and day out, in some cases for as long as 26 years.



26 Years

of accumulated experience and constant advancement in serving the oil industry are back of Williams' Service in meeting your present-day needs.

WILLIAMS Pipe Threading Machine No. 16 B.—Capacity 6 inches to 16 inches

WILLIAMS TOOL CORPORATION ERIE PA., CANADIAN PLANT BRANTFORD ONTARIO

at 3,753 feet. No. 1 Hursey is in a brown shale at 4,139 feet but the streaks in this case are fine gray sands. The company took a core in No. 1 Zins at 4,046 feet and, when it was negative, resumed drilling and is at present down 4,051 feet. On the Howard Park lease, formerly known as Athens, the Union is reaming both Nos. 2 and 3, the former being down 4,687 feet and the latter, 4,460 feet. No. 4 is rigging up, No. 5 was suspended at 400 feet, while No. 6 is going ahead at 1,800 feet. No. 1 Gordon, a rank wildcat in the extreme southwestern part of the district, is drilling in a gray sand at 4,520 feet. No. 1 Horowitz, offsetting the Standard's No. 1 Cowan, to the north, shows 1,400 feet of hole.

Big Dominguez Well

When the Shell Oil Co. put No. 11 Reyes on production at Dominguez during the early part of the week it not only brought in an excellent producer but it had the good fortune of finishing the largest well which this field has contributed to date. Not only was the well a good one but it makes the southern part of the field look immensely better. No. 11 Reyes must have made Associated Oil Co. officials envious since it offsets this company's No. 1-B. De Francis, which has caused so much trouble. At the same time it must have afforded no little amount of pleasure as it proves up the Associated's property for big production. No. 11 Reyes, drilled to 4,220 feet, made 2,620 bbls. during the first 13 hours. The first 24-hour test showed the well to be flowing a little better than 5,000 bbls. of clean 32.6 gravity oil. The Associated Oil Co., in abandoning No. 1-A De Francis at 968 feet, saw its second attempt to develop production on this lease frustrated by gas. The first hole was destroyed by a gas blowout at 3,556 feet, while No. 1-A De Francis, the present abandonment, ran into a cavity caused by gas, which could not be plugged up to permit drilling. As a result of the loss of No. 1-A De Francis, the rig is being skidded and the new hole will be known as No. 1-B. Nos. 2, 3 and 7 on the same lease are rigging up for an early spud, while Nos. 4 and 5 are going ahead, the former at 2,400 feet and the latter at 1,600 feet. The Shell Oil Co. closed a deal during the week for the Homestead Ranch consisting of 140 acres adjoining the Associated's De Francis lease on the east and the United's Dominguez lease on the north. Authentic information is not available as to what the Shell paid for its new lease. The Shell immediately started work on Nos. 1, 2 and 3, offsetting the Associated's line wells on the De Francis lease. It will not be known, of course, just how productive the Shell's new acquisition will prove to be until it is drilled up, although the company's big well, No. 11 Reyes, makes the southwestern part look good. Just how far east production will extend cannot be forseen. None of the Shell's drilling wells look good for immediate production, with the possible exception of No. 1 Hellman and No. 6 Reyes, both held up because of water trouble. Cement plugs have been set in each and they should be on a test shortly. Neither the Union nor Shell seems to be pushing development work, being content with keeping a constant number of strings working at the same time. The Union is drilling only one well on its Callender lease, No. 5 at 4,680 feet, one on its Hellman proptery, No. 3 at 4,263 feet, and two holes on its Carson lease, No. 2 at 4,313 feet and No. 3 at 4,169 feet. The Marland is running three strings of tools and shows 3,245 feet of hole in No. 2 and 2,220 feet in No. 3 and 350 feet in No. 4. The Birch Oil Co.'s test in the extreme southwestern part of the field seems destined to be a dry hole and the present formation at 4,900 feet, a hard gray sand, gives no encouragement whatever. The United Oil Co. has spudded in No. 2 Dominguez approximately 500 feet east of No. 1.

Torrance

The Standard Oil Co. carried off completion honors in the Torrance Field by bringing in six new wells, two on the Sentinel-Joughin lease, three on the Marble Fee property and one on the Carson lease, and incidentally increased its daily production 1,670 bbls. Number 11 Sentinel-Joughin was drilled to 3,820 feet and finished with a 6¼-inch oil string landed on bottom, while No. 13 on the same lease was drilled to 3,845 feet and finished with a 6¼-inch oil string landed at 3,844 feet. The former is credited with an initial daily production of 475 bbls. of 18.6 gravity oil which showed a cut of 2 per cent, while the latter made 463 bbls. of 19.8 gravity oil which cut 3 per cent. No. 25 Marble Fee was good for 204 bbls. of clean 22.7 gravity oil, while No. 26 Marble Fee is credited with 216 bbls. of 22.8 gravity oil which showed a cut of 2 per cent. They were both finished with 6¼-inch oil strings landed on bottom. No. 17 Marble Fee proved to be a pumper from 3,740 feet. It was finished with a 6¼-inch oil string carrying 565 feet of 60 mesh screen landed on bottom. On the beam it made 152 bbls. of 23.7 gravity oil which cut 2 per cent. No. 1 Carson, drilled to 3,813 feet and finished with a 6¼-inch landed at 3,848 feet, made 160 bbls. of 14.1 gravity oil which cut 5 per cent. The Chanselor-Canfield Midway Oil Co. completed two new producers on its Torrance property, No. 59 at 3,695 feet and No. 63 at 3,587 feet. The former, finished with a 6¼-inch oil string landed on bottom, pumped 220 bbls. of clean 26.1 gravity oil, while the latter finished with a 6¼-inch oil string landed at 3,584 feet, was a flowing well good for 732 bbls. of 24.2 gravity oil which cut 2 per cent. An 8¼-inch casing was set at 5,170 feet in the company's deep test, No. 1 Francis, drilled to 5,175 feet, as a protective measure, the hole giving no encouragement to date. Judging by the depths of the various holes being drilled, the company should not be in a position to increase its list of producers within the next two or three weeks, although No. 22 Del Amo, now going ahead at 3,638 feet, may possibly be on production sooner.

New Development Work

The Shell's contribution to the field's list of producers was No. 7 Scarborough, a 72-bbl. pumper from 3,850 feet. The oil showed a cut of 15 per cent and it is believed that the output will increase after the well has cleaned itself out. The company's test, No. 2 Kettler, is drilling in a hard shale at 4,800 feet with no showings of any particular importance. As a result of the recent completion of No. 1 Campbell by the Consolidated Mutual Oil Co. in the extreme southeastern part of the field, quite a good deal of new development work has been projected. This company has taken over the Big Sioux Oil Co.'s No. 1 Corbusier and secured an additional lease from the White Star Oil & Refining Co. The Big Sioux's well is being cleaned out at 405 feet, while a rig has been erected and a location staked for No. 2 on the property secured from the White Star. No. 1 Campbell, which sanded up following its completion, is being cleaned out and will probably be put on the beam soon. The short, but satisfactory flow made by this well has resulted in the staking of a location for No. 1 Poggi by the General Petroleum. This property is between the Campbell lease and the Superior Oil Co.'s Torrance property, upon which the latter company has just augmented its list of producers by finishing a 596-bbl. flowing well, No. 46. The Superior's new producer, drilled to 3,825 feet and finished with a 6¼-inch oil string carrying 293 feet of perforated, is flowing through a ½-inch bean under a pressure of 300 pounds, the oil being clean and testing 19.4 degrees. The Petroleum Securities (Doheny) did not actually put any new wells on production during the week, although two or three on Kleinmeyer lease A are scheduled to be bailed within a few days. The first official production test made of No. 1 on this lease completed a week or so ago showed the well to be making 192 bbls., there being no change in the gravity of the oil, 145 degrees. The Sentinel Oil Co. has staked a location for No. 15 Joughin and should begin work shortly. No. 13 is drilling at 3,471 feet, while No. 14 is going ahead at 2,100 feet. The Fullerton Oil Co. finally succeeded in putting No. 1 Salem on the beam, after drilling it to 3,670 feet, and secured a 255-bbl. pumper, the oil testing 16.9 degrees and showing a cut of 5 per cent. No. 5 Cotton, drilled to 3,750 feet, is being bailed and this well, together with No. 2 Barlow at 3,565 feet, should be on production soon. The company did not have as good luck with No. 3 Cotton Fee as it only pumped 65 bbls. of rather dirty oil upon its completion at 3,710 feet. It was finished with 3,700 feet of 8¼-inch carrying 600 feet of 60 mesh screen and 3,000 feet of 2½-inch tubing.

Long Beach

There was really only one well successfully finished at Long Beach during the week, No. 9 Haas of the United Oil Co., although another was given a try. The Petroleum Midway, after drilling No. 1 Chamberlain to 4,936 feet and finishing it with a 4½-inch oil string carrying 117 feet of 60 mesh screen, put the well on production but it proved a little disappointing. The quantity, 500 bbls. daily, was satisfactory, but the oil, which tested 17.9 degrees, showed a cut of over 50 per cent. Unless the production cleans up additional work will probably be required. No. 9 Haas of the United Oil Co. has a deep zone well coming in from 5,281 feet. It is credited with 475 bbls. during its initial flow, the oil testing 27.8 degrees and showing a cut of a little less than 1 per cent. The Shell has gradually cut its drilling program down until the company is only running about 15 strings of tools. As a result the company's completions will, in the future, be small in number. Possibly within a few weeks the company will diminish its number of strings in operation by completing Nos. 20 and 21 on the Alamitos lease, No. 5 Coseboom, No. 2 Hutton and No. 6 Nesa. The A. & P. Syndicate is preparing to return to No. 1 Hawkeye to production after deepening it to 4,430 feet and at least a 300-bbl. well is anticipated. The Delaney-Camp Oil Co. has carried the Bartholomae Oil Co.'s well No. 3 to 4,750 feet and, judging by indications, should finish a good producer. The rotary is being torn out of No. 4, a water well at 5,050 feet, and an early abandonment would not be surprising. Davis & McMillan's well No. 9 looks like it might be a good one upon completion as it is showing up unusually well at 4,857 feet, at which depth it has been cemented.

There are no new wells added at either Huntington Beach or Santa Fe Springs during the week and very little development work of interest in either field. The Petroleum Midway's No. 4 Brown furnished a topic for discussion during the week by suddenly increasing its production from 150 bbls. to nearly 1,150 bbls. For the past month or so it has been doing around 150 bbls. and the sudden increase in the well's ouput is probably due to the fact that the perforations in the oil string have automatically been cleaned out after becoming mudded up. The company still has several wells in bad shape as the result of small production and water trouble. The Standard put well No. 23 on lease A on a production test early in the week, but as very little oil was present in the output it was not officially completed. It may clean up after being on production for a few days. On the same lease rigs are being erected for Nos. 26 and 27. The Southern California Drilling Co. has redrilled and deepened the Holly Oil Co.'s No. 1-A Wilson to 3,269 feet and secured what looks to be a 250-bbl. well. It will probably be put on a test within a few days. At Santa Fe Springs, the

(Continued on Page 208)

Rocky Mountain Area

By F. B. Taylor

CASPER, Wyo., Sept. 30.—The Salt Creek Field is the only field in Wyoming carrying on an extensive drilling campaign this fall. Due to the Midwest well in the Lakota, several other companies are starting wells to that sand or will deepen holes already drilled. Since being pinched in to about 200 bbls. daily the Midwest well is flowing straight crude though an emulsion is expected if the well was opened any more.

This appearance of an emulsified oil is rather new in the Wyoming oil fields. The production from this State is generally free from any emulsion and where the sands produce both oil and water, the separation is readily made in the tanks except in cold weather when heating or centrifuges become necessary to throw down the water out of the crude; however, there is no true emulsion. In some of the shallow oil showings found in the shales, there is some emulsion of oil and water, but this showing is generally so small as to be ignored by the operators and it would not pay to produce this fluid.

The postponement of the Teapot Dome trial at Cheyenne to January has been a keen disappointment to many operators in the south end of the Salt Creek Field. It was hoped the trial would be heard this fall so that, if the Mammoth Oil Co. was successful, a deep test on Teapot to the Lakota would be drilled and some idea had of the extent of the new sand in that direction.

To Test Colorado Wells

The big gasser of the Union Oil Co. of California on the Wellington Dome in Colorado and the Fort Collins well of the same firm just north of Fort Collins about 3 miles are to be tested for production shortly. Tankage in preparation is nearly ready and the company officials want some concrete idea of what the production will be before making any definite long term contract for marketing the oil. At present there is a contract for the delivery of this production to the Standard of Indiana at Casper through its subsidiary, the Midwest Refining Co., but this contract is understood to be for only a short period.

If the two wells show enough production to warrant building a large tank farm, it is generally understood in Casper that negotiations which were opened between the Union and the Sinclair Pipe Line Co. will result in the laying of a pipe line from Fort Collins to a junction with the Sinclair line at some point in Wyoming with the Salt Creek and Kansas City line.

At the same time, the civic interests of Denver are working to bring the oil there and also a refinery. A tract of nine acres has been proposed as a site and the promoters are working to have the city or the business interests purchase this tract and give it to any company which proposes to build a refinery.

New Tests in Colorado

The past week has been a busy one in the starting of new work in Colorado, much of which is considered due to stipulations in leases requiring rigs or wells started in order to hold the tracts. It is further considered that many of these rigs now going in to locations will never be drilled, but several bona fide companies are starting wells that will be completed as regular tests. The Ohio Oil Co. is getting ready to drill on Section 22-1-69 in in Boulder County out of Longmont and the Quaker Oil Co. is starting a well on Section 17-9-68 south of the Union's wells on the Wellington Dome. The Quaker has an 80-acre tract on this section that lies within the expected water line contour of the Wellington Dome.

The Producers Petroleum Corporation is also starting a test on the Douglas Lake Dome, between the Wellington and Fort Collins structures and the Outwest Consolidated Oil Co. has taken a lease on 40 acres on Section 8-8-68 on the Fort Collins Dome and will start drilling at once. This makes five different tracts the Outwest holds in the Wellington district.

(Continued on Page 188)

RECOMMENDED BY THE UNITED STATES BUREAU OF MINES

Halliburton Oil Well Cementing Co.
Duncan, Oklahoma

North Louisiana-Arkansas

By M. L. Vaughn

Arkansas production is down 1,845 bbls., mostly in Smackover heavy, and North Louisiana 200 bbls. Cotton Valley only active point. Tests in new extensions. Spring Hill work renewed. Lyell and others' No. 5 Fee, Union County, pumps 300 bbls. McFarland and others' No. 4 Graves swabs 200 bbls.

SHREVEPORT, La., Oct. 6.—Production continues on the down grade, Arkansas showing a decline of 1,845 bbls. a day and Louisiana fairly holding its own with a decrease of only 200 bbls. a day. There was very little variation in figures from the Louisiana districts during the past week, the total production averaging 53,930 bbls. a day. In Arkansas, the chief difference was in Smackover heavy which showed a decline of 1,975 bbls. a day, partly offset by slight increases in other districts, the average daily production for the entire field amounting to 129,890 bbls. Total production from both Arkansas and North Louisiana averaged 183,820 bbls., distributed as follows:

North Louisiana	
Bellevue	4,650
Caddo light	10,025
Caddo heavy	2,490
Cotton Valley	6,655
De Soto and Red River	4,960
Elm Grove	740
Haynesville	17,240
Homer	7,410
Total	53,930
South Arkansas	
El Dorado	12,065
Nevada County	1,330
Smackover light	45,420
Smackover heavy	78,765
Stephens	2,310
Total	129,890
Total both fields	183,820
Decrease	2,045

Cotton Valley Busiest

The Cotton Valley district in Webster Parish is practically the only district in the field that shows any sign of activity other than that made necessary by terms of drilling contracts, and even here drilling activity is very light compared with that which generally ally follows the discovery of a new field.

Two tests have been started 2½ miles southwest of production, in the new extension of the field, Moffatt and Murphy having derrick up for No. 1 Coyle and the Louisiana Oil Refining Corporation drilling at 300 feet in No. 1 H. C. Gray, both in Section 28-21-20. The Humble Oil & Refining Co. has three tests started in this neighborhood, on the Bodcau Lumber Co. lease, B-1, Section 24-21-10, drilling in rock at 850 feet and B 2 in the same section drilling at 180 feet, derrick up for B-3 in Section 28-21-10.and rigging up to drill No. 1 M. S. Davis, Section 24-21-10.

In the older part of the field, the Alabama Petroleum Co. is drilling in chalk rock at 2,060 feet; Fortuna Oil Co. tested dry and waiting orders at 2,475 feet in No. 1 W. Cox, Section 15-21-10; set 6-inch casing at 2,493 feet in No. 4 L. Merritt, Section 14-21-10, and at 2,490 feet in No. 1 S. J. Merritt, same section; Gulf Refining Co. drilling in chalk rock at 1,850 feet in No. 1 W. Cox, Section 15-21-10.

The Humble Oil & Refining Co. set 10-inch casing at 450 feet in No. 3 Merritt, Section 14-21-10; Invincible Oil Co. drilling plug in 6-inch at 2,485 feet in No. 2 Crichton, Section 21-21-10, and Ohio Oil Co. rigging up to drill No. 3 on the Bank of Cotton Valley lease, Section 22-21-10, bailing to test 17 feet of sand at 2,532 feet in No. 5 Bodcau, set 6-inch at 2,470 feet in No. 6 and drilling in chalk roock at 2,230 feet in No. 7, Section 15-21-10.

The Oil Field Gas Co. is drilling at 650 feet in Hope Estate B-3, Section 13-21-10, and S. S. Raymond and others are bailing 6-inch casing to test at 2,500 feet in No. 1 Gaynor, Section 21-21-10.

The success of the Cotton Valley district has encouraged a resumption of drilling operations in the Spring Hill district in the north end of Webster Parish, and several tests have been started in this territory.

The Butler-McMurray Drilling Co. has derrick up for No. 1 Baker, Section 34-23-11, and W. L. Hoehnlen, trustee, has derrick up for No. 1 Roberts, Section 17-23-1e.

Between the Cotton Valley and Spring Hill districts, in Section 1-22-10, the Bethany Oil & Gas Co. is rigging up for a test on the T. R. Wiley lease, 8 miles north of Cotton Valley production.

Completions

Union County, Arkansas

Completions in the Union County area of the Smackover Field during the past week numbered 10, with four failures, two gas wells, and new production aggregating 725 bbls.

Arkansas Fuel Oil Co. completed No. 2 J. E. Murphy, Section 8-16-16, pumping 100 bbls. a 2,298 feet.

Bonderant and others abandoned No. 1 Clark, Section 34-17-12, at 2,811 feet, and No. 1 Stegall, Section 3-18-12, at 3,041 feet.

Dillon and others abandoned No. 1 Goodwin, Section 22-16-16, at 2,139 feet.

Leonard and others completed No. 1 Pendleton, Section 21-18-15, making 1,000,000 feet of dry gas at 2,156 feet.

The Lion Oil & Refining Co. abandoned No. 4 Allgulf, Section 17-16-15, at 2,070 feet.

Lyell and others completed No. 5 fee, Section 3-16-15, pumping 300 bbls. at 1,975 feet.

McFarland and others brought in No. 4 Graves, Section 3-16-15, swabbing 200 bbls. at 1,984 feet.

Packard and others completed No. 1 Fox, Section 21-16-15, swabbing 125 bbls. at 2,066 feet.

Hickman and others completed No. 6 Graves, Section 3-16-15, making 30,000,000 feet of dry gas at 2,261 feet.

Ouachita County, Arkansas

Atlantic Oil Producing Co. completed No. 2 Jeffus, Section 25-15-17, pumping 75 bbls. at 2,331 feet.

The Gilliland Oil Co. completed No. 7 McRea, Section 25-15-17, swabbing 30 bbls. at 2,296 feet, and No. S-5 Wells, Section 25-15-17, making 30 bbls. at 2,293 feet.

Green and others completed No. 1 LaGrone, Section 30-15-16, swabbing 25 bbls. at 2,282 feet.

Herman and Jackson brought in No. 1 Shirey, Section 36-15-17, making 40 bbls. at 2,306 feet.

The Peltier Oil Co. abandoned No. 2 Eagle Mills Lumber Co., Section 25-12-16, at 2,693 feet.

Ramage and others abandoned the location of No. 3 Jeffus, in Section 25-15-17.

Bossier Parish—Bellevue Field

Bliss and Wetherbee completed No. E-7 Bliss & Wetherbee, Section 27-19-11, pumping 5 bbls. at 322 feet.

Caddo Parish

Adams, T. C. and others moved rig off and abandoned No. 1 Johnson, Section 16-14-16, at 2,653 feet.

Ladell and others completed No. 26 fee, Section 16-19-5e, with an initial production of 11,000,000 feet of gas at 2,193 feet.

Montgomery and others completed No. 1 fee, Section 6-19-5e, with an initial production of 34,000,000 feet of gas at 2,158 feet.

Pelican Gas & Carbon Co. completed No. 1 Shell, Section 18-19-5e, making 2,000,000 feet of gas at 2,169 feet.

West Carroll Parish

Arkansas Fuel Oil Co. abandoned No. 1 Fiske, Section 8-21-10e, at 3,002 feet.

Columbia County, Arkansas

Magnolia Petroleum Co. completed No. 1 Watson, Section 36-15-20, swabbing 25 bbls., at 2,153 feet.

Union County Arkansas

Drilling Operations

Arkansas Fuel Oil Co. drilled plug in No. 2 Dumas, Section 29-16-15, and it showed salt water; now running core barrel at 2,081 feet; Black Duke Oil Co., waiting on standard rig with 500 feet of oil and 7 feet of sand in hole at 2,094 feet in No. 2 Wilson, Section 19-16-15.

H. E. Clark set 10-inch casing at 65 feet in No. 2 Neely, Section 1-16-17; Dyer Brothers set 6-inch casing at 2,281 feet in No. 3 Stout Lumber Co., Section 31-15-16; Estes and others set 6-inch casing at 2,250 feet in No. 2 Neely, Section 1-16-17.

Flo Ark Oil Co. pulled liner and reset with packer in 3 feet of sand at 2,156 feet in No. 1 Murphy, Section 36-16-16; Lion Oil and Refining Co., drilling in hard rock at 1,975 feet in No. 5 Graves, Section 3-16-15.

Lyell and others set 6-inch casing at 1,863 feet in No. 6 fee, Section 3-16-15; Magnolia Petroleum Co. set 10-inch casing at 166 feet in No. 3 Campete-Campbell, Section 13-16-17; set 6-inch casing at 2,231 feet in No. 1 J. G. Smith, Section 2-16-17; waiting on standard rig with 1,500 feet of oil and 8 feet of sand in hole at 2,266 feet in No. 2 I. Smith, Section 2-16-17.

Meek, trustee, is waiting on standard rig with 800 feet of oil and 10 feet of sand in hole at 2,129 feet in No. 3 Burton, Section 25-16-16; Ohio Oil Co. waiting on standard rig with 300 feet of fluid, of which 11 per cent is salt water, and 5 feet of sand in hole at 2,005 feet in No. 3 Scott, Section 19-16-15; derrick up for No. 4 Scott, same section.

Sam Richardson is waiting orders at 2,378 feet in No. 3 Murphy, Section 25-16-15; W. E. Rutledge, trustee, swabbing to test 12 feet of sand at 2,271 feet in No. 1 Meek, Section 6-16-16; Star Oil Co. has hole clean in No. 3 Burton, Section 25-16-15, and arranging to deepen from 1,770 feet.

United Central Oil Corp. set 10-inch casing at 100 feet and drilling at 1,01 feet in No. 4 Burton, Section 25-16-16.

Wright and others set 6-inch casing at 2,231 feet in No. 2 Hodges, Section 1-15-17.

Ouachita County, Arkansas

The Atlantic Oil Producing Co. set 10-inch casing at 59 feet in No. 3 Jeffus, Section 25-15-17; Bray-Hawthorne drilling No. 1 Elliott, Section 11-15-17, at 1,30 feet; J. E. Crosbie set 8-inch casing at 1,971 feet in No. 2 Davidson, Section 36-15-16; Crusade Pipe Line Co. drilling No. 1 Snow, Section 22-13-16, at 1,000 feet.

The Forest Oil Co. is rigging up No. 5 D. Minor, Section 29-15-16, and arranging to deepen No. 4 Mullins from 2,000 feet, Section 28-15-16; Guy Fredy set 6-inch casing at 2,252 feet in No. 1 Jeffus, Section 26 15-17, has 500 feet of oil in the hole and arranging to swab in 26 feet of sand at 2,327 feet.

The Gilliland Oil Co. lost 6-inch casing seat in No. 4 Myar fee, Section 30-15-16, and cemented 4½-inch casing at 2,26 feet; tested dry, with showing of gas at 1,978 feet No. 4 W. A. Smith, Section 36-15-17, and arranging to drill in with tools from 2,263 feet.

The Magnolia Petroleum Co. has derrick up for No. 1 Clawson, Section 25-15-17, formerly Brown No. 3; derrick up for No. 3 Nettie Patton, Section 32-15-16 and derrick up for No. 3 and 4 W. F. Patton, Section 31-15-16.

The Marine Oil Co. set 8-inch casing at 1,911 feet in No. 1 Hays, Section 4-16-15; McCorkle and others set 10-inch

(Continued on Page 219)

News of Mexican Fields

By George Blardone

TAMPICO, Mex., Oct. 5.—Tampico has been in the throes of a general strike since Thursday, following an attack on a boiler station in the Mexican Gulf Oil Co.'s terminal, at which a strike was in progress. Federal troops, when the strikers failed to halt, fired, one man being reported killed and several thought to have died of wounds. The rush on the boiler station stopped. This called for a general strike by syndicalists. The electric light plant was shut down, which means the closing down of practically every manufacturing plant in the city. Service automobiles were stopped by strikers including the "jitney." Stores closed their doors. All workers left oil terminals idle. Apart from this order was perfect as the military hand was firm.

Friday banks closed in the afternoon when there was another big demonstration. It amounted to nothing, however, and city service is promised on the street car lines and daily power for plants. Power for city lights was on Friday night under military orders.

It is reported that the workers in the terminals and refineries of the Cia. Mexicana-Holandesa La Corona, S. A., (Royal Dutch-Shell) and Transcontinental Petroleum Co., (S. O. of N. J.) will remain on strike along with those of the Mexican Gulf Oil Co.'s terminal.

New Completions

The past week in the fields reads like the Book of Job. Six completions were failures. One completion of 150 bbls. is to be recorded. Of the failures the most interesting, and disappointing is the Morrison No. 2 in Tortuga, the wildcat territory just north of the Chila Field, which has been attracting attention. At 2,400 feet it drilled into some salt water in a gray limestone. The one completion that had any oil to its credit last week was Mexican Eagle Oil Co.'s No. 22, Lot 1, Cacalilao, finished at 1,550 feet for the afore mentioned 150 bbls. La Corona Petroleum Co., and International Petroleum Co., each had a failure in the Cacalilao sector of the Panuco Field, while Hicks and others finished a dry hole in Lot 6 Paciencia de Aguacate of the Topila Field.

In the South Fields, La Corona Petroleum Co.'s No. 4-A, Lot 31 Zacamixtle, is a duster at 2,445 feet, and International Petroleum Co.'s No. 47 Totoco is a salt water well at a sub-sea level of 1,254 feet.

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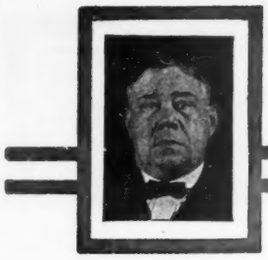


Gulf Coast Oil Operations

By P. L. McGreal

Goose Creek Pool extended nearly 1 mile by Humble Oil & Refining Co.'s No. 56 Smith, which flowed 1,500 bbls. Gulf-Snowden & McSweeney's No. 14 Davis Big Creek, which came in flowing 6,000 bbls. choked down to 1,200 bbls. Vacuum Co.'s Calcasieu well choked down to 2,000 bbls.

HOUSTON, Tex., Oct. 6.—A slight increase in new work is noted in the coastal region, notwithstanding the recent cuts in credit balance quotations. This is due to lease obligations and not to any desire on the part of operators to increase the daily average output. The Gulf-Snowden & McSweeney No. 14 Davis, at Big Creek, in Fort Bend County, which came in last week flowing 6,000 bbls. is choked down to an average of 1,200 bbls. through a ⅝-inch choke. A 6-inch line is being laid by the Gulf Pipe Line Co. from the Blue Ridge Pool, a distance of 18 miles. The Vacuum Oil Co.'s No. 1 Miller, near Lockport, Calcasieu Parish, Louisiana, is choked down to an average of 2,000 bbls. per day. The Gulf Co. has three-fourths interest in the 5,500 acres held by the Vacuum Co. there in a marsh. The acreage is presumed to cover more than the area of the new pool, hence there is but little leasing and not much interest, beyond the recognition of a new pool in the Gulf Coast region. The Vacuum Co.'s No. 1 Gray there is now drilling below 3,900 feet. The discovery well got the top of the sand at 3,875 feet.

The Texas Co. made a location for No. 1 at Big Creek, as have Rich and associates on the Ahlers lease there. The Texas Co.'s No. 12 Robinson, at Blue Ridge, flowing 1,200 bbls., 30 per cent sediment and water, at 3,905 feet, quit and is being rigged to pump. The Gulf Production Co.'s No. 1 Invincible there, is drilling below 3,600 feet. The Mutual Oil Co.'s No. 13 Chesson, in the Orange Pool, is pinched down to 2,200 bbls. per day.

Completions in the coastal pools during the week number 21, of which 10 are worked over holes. The new output totals 4,037 bbls. Two holes are listed as dry; seven wells were bailing at the close of the week.

Estimated Daily Average Production

The estimated daily average gross production in the Gulf Coast Pools for the week is placed at 85,170 bbls., against an estimate of 83,925 bbls. last week, showing an increase of 1,245 bbls. The estimate for the southwest fields is placed at 36,895 bbls. compared with an estimate of 36,385 bbls. last week, representing an increase of 510 bbls. The increase is due to working over old wells in the Luling Field, restoring some to production and reducing the amount of water in others.

The estimate for each district is as follows:

District—	Gross Bbls.
Batson	1,590
Blue Ridge	1,900
Barber Hill	145
Big Creek	1,500
Dayton	100
Damon Mound	1,250
Edgerly (La.)	460
Goose Creek	10,915
Humble	6,900
Hull	18,200
Jennings (La.)	740
Markham	160
Orange	10,100
Pierce Junction	325
Spindletop	1,020
Saratoga	1,615
Sour Lake	1,550
Vinton (La.)	5,560
Welsh-Anse La Bute (La.)	80
West Columbia	16,750
*Miscellaneous	2,210
Total	85,170

*Lockport (La.), 2,000 bbls.; High Island, Galveston County, 60 bbls.; Hockley, Harris County, 20 bbls.; Big Hill, Jefferson County, 20 bbls.; Nacogdoches, 110 bbls.

Southwest Fields—	
Luling	29,200
Laredo	4,075
Somerset	2,570
Calliham	590
Rockdale-Minerva	460
Total	36,895
Grand total	122,095
Grand total last week	120,310
Increase	1,755

Two dozen derricks are up or locations made for new wells in the pools, five being in the Goose Creek district and five at Orange. In addition old wells are being worked over, which tends to keep the daily average production well above the 80,000 bbl. mark. With the Big Creek Pool out of the semiproducing class and the new pool near Lockport, La., the outlook for diminishing production in the coastal territory and consequent improvement in prices does not look very encouraging. To be added to these are the dome prospects 7 miles east of Damon Mound, where the Rycade Petroleum Corp. is doing exploration work and the Boling Dome, in Wharton County, where the Gulf Production Co. is exploring to determine the salt area. The High Island Dome, in Galveston County; the Hockley Dome, in Harris County; Big Creek, in Jefferson County, and Stratton Ridge in Brazoria County, are all possibilities that may develop big production any time and become classed as regular producing pools. Another bear factor is the news from Venezuela that an American company with production there plans to start shipipng crude to the United States about the first of the coming year. This product will be another competitor against the heavy gravity Gulf Coast crude. The present competitors are Mexican crude, Smackover (Arkansas) heavy, Luling and the Laredo districts. These bearish factors are not mentioned in a pessimistic spirit, but rather as facts which must be recognized and met by producers and marketers.

Coastal Operations

The Goose Creek Pool was extended nearly 1 mile from the original district and some 400 feet later developments when the Humble Oil & Refining Co.'s No. 56 Smith, on the east side, came in flowing 1,500 bbls. at 4,125 feet. It is showing a heavy gas pressure and sanded several times before it was finally cleared. The location is near Pine Gulley, toward Cedar Bayou and means a lot of acreage has been proven up. The first well out in that direction was Simm's & Co.'s (H. F. Sinclair) No. 33 Smith, a wild gasser spraying oil. The Humble Co. took over Simms & Co.'s holding in the pool two years ago. Out in the bay, the Gulf Production Co.'s No. 2 San Jacinto is making 200 bbls. at 3,230 feet and No. 4 Hirsch is drilling at 3,138 feet. The Sun Oil Co. is putting No. 8 Smith on the jack at 2,240 feet, as are Allen & Marshall No. 1 Gillette. The Gulf Coast-United Central Oil Co.'s joint No. 31 Galliard is bailing at 2,875 feet.

The Humble Oil & Refining Co.'s No. 59 Smith is drilling at 3,600 feet, with Nos. 5 Jones and 2 Tabb rigging. The Gulf Production Co.'s 21-A Wright is drilling at 3,875 feet, with No. 11 Smith below 1,765 feet. Nos. 22-A Wright and 8 Chapman-Bryan are both rigging to start drilling. The Southern Exploration Co.'s No. 6 Wright is sidetracking and No. 8 Wright is around 1,345 feet. The Howard Oil Co.'s No. 4 Bryan is sidetracking. The Inca Production Co. has a derrick up for No. 2 Duke. The Copeland Oil Co.'s No. 6 Bryan is below 3,220 feet and the Hisgen Petroleum Co.'s No. 2 Busch, northwest of production, is drilling around 3,250 feet.

Some Deep Holes

In the Orange Pool are a number of very deep tests drilling on the southeast side. The Brownie Babbittee Oil Co.'s No. 4 Brown is below 5,500 feet and the Sun Oil Co.'s No. 5 Brown is below 5,100 feet. The Gulf Production Co.'s No. 5-A Winifree fee is deepening from 4,500 feet and its No. 2 Hamman-Consolidated is around 4,100 feet. No. 5 Pevito is deepening from 3,800 feet. In other parts of the pool the same company's No. 8 Kishi-Lang is drilling around 3,345 feet, with No. 1 Granger at 455 feet. No. 8 Pevito is rigging.

The Rycade Petroleum Corp.'s No. 1 State Land in Cow Bayou is below 4,600 feet. No. 5-E is at 1,345 feet; No. 8-E at 3,400 feet; No. 14-E at 3,340 feet with a location for No. 3-E. The Mutual Oil Co.'s No. 3 Chesson is deepening from 4,325 feet; No. 5 is around 3,600 feet with a rig in for No. 7. All are old holes working over. The Humble Oil & Refining Co.'s No. 8-B Chesson is deepening at 3,200 feet; No. 7 Winifree is drilling at 2,810 feet with locations for Nos. 11 Winifree and No. 21-B Chesson scheduled to drill 4,600-4,700 feet where the Mutual Oil Co.'s No. 13 Chesson got the sand. The Orange Petroleum Co.'s No. 8 Chesson is drilling at 150 feet. No. 3 Berwick is at 4,000 feet. The Tillery Oil Co. is working over No. 2 Cow Bayou. The Edgerly Petroleum Co.'s No. 10 Carbello is around 3,245 feet. On the northeast side, the Sun Oil Co.'s No. 1 Kato is drilling at 4,375 feet.

Hull Pool

The Mecom Oil Co.'s No. 7 Mecom, on the northwest side of the Hull Dome, is pumping 25 bbls. The Republic Production-Houston Oil Co.'s joint No. 91 Dolbear is going on the jack at 2,450 feet as is the Yount-Lee Oil Co.'s No. 10 Merchant at 3,965 feet. The Texas-Vacuum Oil Co.'s joint No. 2 Hannah, a work over, is bailing at 3,025 feet.

On the east side of the dome, the Republic-Houston Oil Co.'s Nos. 19 and 67 Dolbear are working over. No. 90 is drilling below 3,385 feet, with No. 92 at 2,455 feet and No. 93 rigging to start drilling. On the southeast, the Gulf Production Co.'s No. 6 Thomas is at 3,710 feet, with No. 17 Phoenix working over. The Humble Oil & Refining Co. is rigging No. 18 Guedry on the south side. On the west side, its No. 1 Hannah is drilling around 4,200 feet and No. 1-B Hannah is at 775 feet. The Gulf Production Co.'s No. 15 Hannah fee is at 3,824 feet. On the northwest, the Mecom Oil Co.'s No. 6 Mecom is below 3,835 feet. On the north, the Gulf Oil Co.'s No. 7 Scarborough is deepening at 3,435 feet and No. 13 Scarborough is at 3,400 feet and fishing.

Hardin County Pools

The Batson Pool furnished four small wells and one making 120 bbls. The latter is Cavitt & Co.'s No. 1 King, completed at 1,080 feet. The Paraffine Oil Co.'s No. 58 is pumping 10 bbls. from the old shallow sands at 360 feet. The East Batson Oil Co.'s No. 4 Counsel is good for 5 bbls at 750 feet and S. F. Buchanan's No. 78 Milhome is a 12-bbl. well. The Duetser Oil Co.'s No. 1 Trustee, is making 5 bbls. at 1,125 feet.

The Ada Belle Oil Co.'s No. 81 W. is drilling at 616 feet. W. B. Fyan's No. 2 Donohoe is at 1,124 feet. Anderson & Munson's No. 1 Hodges is rigging.

In the Saratoga Pool, the Sun Oil Co.'s No. 172 Brice is a 5-bbl. well at 7[illegible] feet. The Rio Bravo Oil Co.'s No. 312 is drilling around 600 feet and the W. don Oil Co.'s No. 7 Kirby at 755 feet.

In the Sour Lake Pool, Hankamer Co.'s No. 1 Brown is pumping 15 bbls. 935 feet. Wells bailing include the Sh Oil Co.'s No. 59 Bass at 500 feet, Lake View Oil Co.'s No. 4 Minor 2,510 feet and its No. 26 Hardin 1,600 feet.

The Rycade Petroleum Co. is still fishing in its No. 1 Gladys at Spindletop 3,525 feet. The Gulf Production Co.'s No. 149 Gladys is drilling deeper.

The Gulf Production Co. abandoned No. 16 Taylor on the east side of the Pierce Junction Pool in rock salt at 4,050 feet. Snowden & McSweeney are starting No. 8 Cain on the same site and H. R. Cullen has a location for No. 4 Cain.

The Texas Co.'s No. 25 Hogg, on the old east side of the West Columbia Pool is flowing 1,200 bbls. after being worked over. The Gulf Co. is drilling No. 6 Tom Hogg there and the Sun Oil Co. is working over an old hole on the Robertson.

At Damon Mound, Hamm and others will work over an old hole on the Bryan, drilled by the Atkinson Oil Co. in the early days of development there. The Sinclair Oil & Gas Co.'s No. 1 Cave, on the northeast side, is below 4,125 feet.

South Louisiana Pools

In the Edgerly Pool, A. L. Gibson washed out the strainer in No. 1 Landry, an old well, and it responded by flowing 3,000 bbls. of fluid of which 200 bbls. is oil. G. W. Gary is drilling No. 15 Lillard there below 2,000 feet.

In the Jennings Pool, F. I. Getty's No. 2 Clements is pumping 175 bbls. at 2,200 feet, after being worked over. The Calcidia Production Co. abandoned No. 41 S. F. S. at 1,750 feet.

R. H. Hines' No. 2 Martin is drilling at 1,800 feet and W. E. Mount's No. 1 Crowley is drilling at 2,155 feet. The Gulf Refining Co.'s No. 37 Arnaudet is rigging and The Texas Co. is starting to sidetrack No. 49 Latrielle to drill deeper.

In the Vinton Pool, the Vinton Petroleum Co.'s No. 3 Rescue is flowing 140 bbls. at 1,150 feet. Marrs McLean's No. 7 Gray is pumping 25 bbls. Wilson & Broach's No. 3 Parks is bailing at 2,000 feet.

The Vinton Petroleum Co.'s No. 13 Harmony is drilling below 2,400 feet. The Just Oil & Refining Co.'s No. 2 Lyons is fishing at 4,100 feet and No. 1 Weeks is shut down at 1,700 feet. The Texas Co.'s No. 11 Gray is around 2,365 feet and No. 26 Gray at 1,375 feet. The Gulf Refining Co.'s No. 33 Star is at 875 feet. The Edgerly Petroleum Co.'s No. 2 Vincent is drilling below 3,345 feet with No. 2 Lizzo rigging up.

Southwest Fields

The A. D. J. Syndicate abandoned No. 2-B Pratt Ranch, in Webb County, east of Encinal, at 5,035 feet. It was the second deep test ever drilled in the border section of the State, the other being near Brownsville, drilled by the late Neils Esperson and abandoned around 5,300 feet.

In the districts, the Alonzo Oil Co.'s No. 6 is a 25-bbl. well. The Neuva Oil Co. set casing in No. 3 at 1,685 feet; Richmond-Gracia Oil Co. did the same in No. 7 Garcia; The Cooperative Oil Co.'s No. 1 Dinn is drilling around 1,750 feet; the Olsan Oil Co. spudded in No. 5; the Magnolia Petroleum Co.'s No. 12 Ochoa is drilling below 1,200 feet; the Caroline-Texas Oil Co.'s No. 6 is below 3,700 feet. Near Bruni, the Cole Petroleum Co.'s No. 5 is around 700 feet and No. 6 is rigging up. Chenault & Allen

(Continued on Page 206)

Researches in Geology of Finding Oil

More Science and Less "Hunch" Would Speedily and Amply Repay Petroleum Industry in Larger Recovery and Less Dry Holes

By Dr. David White

Before International Petroleum Congress, Tulsa, Okla., October 7, 1924

Petroleum geology, it is true, has made great progress in certain lines through the activities of producers, but it is in no degree the protege of the oil industry. The undertaking that it now puts before you is a sound investment, not charity.

The petroleum geologists are recommending that you invest some money in certain scientific researches which in future will repay you with barrels of oil. This day of overproduction, when oil finding seems to be too easy and oil reserves appear plentiful, may not seem especially propitious for urging preparation for greater efficiency and economy in finding and recovering oil even with the object of cutting the losses that have so weakened the oil industry, but I am sure you will agree the time is fast approaching when the struggle to discover new fields to meet our country's requirements will call for all the basic knowledge, trained judgment and skill that can be brought to bear on the really, stupendous task. The investigations and experiments we urge are largely fundamental. Some of them aim at the discovery of principles and relations that lie at the bottom of oil geology. The need for these is pressing, for they cannot be carried out quickly. Their accomplishment cannot fail to be of great and far-reaching benefit to the industry through cheaper and more certain locating of the oil deposits remaining in the ground, and through securing profitably much larger recoveries of the located oil.

Economic Value

Six years ago the proposal that a company should regularly employ a micro-paleontologist or micro-petrologist almost invariably met a cool reception or even ridicule. Today micro-paleontology and micro-petrology, to those producers who use them, mean economy and efficiency in finding oil. By the study of the micro-fossils and of the minerals in the sediments, the formations and, in some cases, the separate beds are identified, sands are accurately correlated, the strata in which the drill is working are recognized, and it is known whether the sought for sand has been passed by the drill, or lies deeper, and how far down, and whether the beds are faulted. This line of scientific subsurface work has everywhere been found profitable by the comparatively few companies that have tried it, and in many areas it is bringing large returns. As the results grow in importance and are better known, more of the companies will see the value of the study of the micro-fossils and minerals, and it is sure to be adopted in other regions and applied to other formations.

Let us hope, however, that, for the sake both of the industry and of paleontology, with consequent gain in the scope and refinement of results, the use of wider range of materials, the quality of the expert training developed and made available, the value and the volume of the output, and the effectiveness and the economy of conduct of the work. The present system of separate or isolated paleontologic studies in the seclusion of the company offices corresponds to the cottage industry period which preceded the invention of the machinery and the organization of factories.

Necessity for Cooperation

The paleontologists, most of whom are not long out of the universities, are struggling along without competent direction or assistance, without the necessary reference collections of fossils, and with pitifully few out of the great number of books needed for study and consultation. Conferences for mutual help in paleontological determinations are handicapped. Most of these workers have had little or no advance preparation for the particular branch of paleontology in which they are now engaged. What is worse, most of these laboratory investigators are making almost no use, or only very restricted use, of many of the fossils at hand (bryozoa, sponges, diatoms, ostracods, conodonts, spores, lime-algae, etc., because they do not know enough about some of the other classes to use them or because they do not have time. The case suggests a four-horse team, in which one horse only, which is ridden by the driver, is hitched to the load. The highest paleontological knowledge and ability, the greatest capacity and the best quality and value of paleontological service to the oil industry are only to be had through consolidation. Joint laboratories in the larger districts or geological provinces for the micropaleontological examinations would be of great benefit to the producer —they would lead to far greater successes—without any additional danger of loss of private economic information. Indeed there would be less danger of such losses. Steps in this direction have already been taken in California where a number of the larger producers have pooled their paleontological work under the direction of a representative board of control composed of paleontological experts and representatives of the companies.

National Research Council

The National Research Council is cooperating with both producers and paleontologists in improving the facilities, in bettering the standards of work, and in extending the scope and values of the studies through the friendly aid of the foremost specialists in each class of fossils and through the utilization of all the kinds of fossils and distinctive mineral sediments in the cores and cuttings.

The Division of Geology of the Council also is compiling a census or directory of these research investigators, with information as to their preparatory education and experience, fields of activity, tastes, methods, laboratory and library equipment, and work accomplished. Also, it is reviewing the students in training, and it will soon be in a position to recommend young or older workers trained for the special region, formation, or class of fossils, according to the areas and ages of the rocks on which the work is to be done.

I venture, at this point, to mention the great ultimate help to the oil producer, which might come from the establishment of research fellowships for this special training, just as fellowships for advanced training in chemistry, physics and biology, of a large number of the most promising students, carefully selected, are underwritten by producers in many other industries. It is worth paying for. The National Research Council now is charged with the scientific and financial administration of 98 such fellowships, the funds for which are entrusted to it by individuals, corporations, associations and foundations.

Larger Recoveries

The oil operators of the United States have spent large sums in experiments and researches in the refining or treatment of oils and gases. The results—cracking and other processes, new products from former waste, the prevention of evaporation, etc.—mark great advances in petroleum technology, profitable both to the operator and the public. The money is well spent. The operators even take an interest in the engineer's problem of the loss of 85 per cent of the potential power of the fuel in the combustion engine. But what about the per cent, sometimes exceeding 85, of the oil that is now left, or even lost in the ground? Are they not planning for the capture of a considerable portion of this oil? If so, do they visualize the highly varied and complex researches that will lead to the recovery, at a profit, of a greater proportion of the oil in the ground?

These studies begin with the sands, and have to do with the characters and volumes of the pore spaces, the sizes and shapes of sand grains, and with cementation, alteration, continuity of pay streak and structure—all with reference to the relations and movements of water, oil and gas. Our limited knowledge of capillarity and the behavior of different liquids in different capillaries and in the same capillaries should be pushed to new bounds. The conditions and places of origin of the oil and gas need to be examined, and pressures and temperatures must be taken into account. Attention must be given to the release of the oil by different means, possibly including chemical and electrical agents. Catalyzers, their relations and their influence, and the changes produced in the rocks, including, of course, the sands, by the waters, gases and oil as they migrate, must be investigated. It may be found profitable, or perhaps necessary to pursue the inquiry back to the fundamental chemistry of the oil and gas, and to the chemical effects on the oil, gas and water, of contact with one another, and with the rocks of different kinds and composition in which they are generated or transformed, or through which they have moved. The problems must be solved with reference to the conditions met in the different types and with oils differing in viscosity and composition. The experiments will be both geochemical and geophysical, and many of them will be original as well as complicated.

Worth the Money

It is evident that these researches require a wide range of expert scientific knowledge and experience as well as laboratory equipment and resources. Their importance demands the best the country has in the way of brains and equipment, for it probably transgresses no bounds of reasonability to predict that within the price limit of imported oil or artificial oil from shales—whichever determines the price—the operator will be able to recover at a profit as much oil from the pools already discovered as he has already taken from the ground. The most essential of these researches to permit us to recover 7,500,000,000 bbls. of oil could be accomplished for less than $500,000 through the effective organization of laboratories in Government bureaus and in universities that are already partly equipped for the work, and by utilizing the experience and directing ability of the skilled scientists in these organizations and institutions. Balanced against the returns reasonably expected, this is a paltry sum.

Some of the initial and less difficult studies, like those of the sands, and the movements of liquids through them, promise to bear early fruits in advance of the full fruition of the researches, and can more easily be brought to a productive stage. The studies of this first group may be carried on for less than $30,000 a year and can probably be completed in two years. With reduced funds, more time will be required, with generous funds, a larger and stronger staff may be organized. The petroleum geologists recommend these studies and experimental investigations as of primary importance.

Increased Ability to Find Oil

In a day sure to come the producer must win his oil at greater cost through larger recovery from the discovered fields, or he must find oil in new fields, and that at not too great expense. Otherwise, he must live on imported oil, use shale oil, or go without oil. The need for finding more oil fields is not an absorbing topic at the present moment, but there are few producers who will not admit, and still fewer who do not know, that in an early year our output will begin to decline. In fact this knowledge is the sustaining hope of many during the present profitless over production. It may be six years, it may be two.

Cannot Maintain Output

We have run our production up to nearly three-quarters of a billion barrels a year. This is a tremendous amount—a terrific rate of depletion. In the public mind it is a case of "the more we take out of the ground, the more we find," but you and I know that, after all, the oil deposits in the United States are a fast diminishing reserve, and that the more we take out of the ground each year the less there is left. Few can be so blindly optimistic as to believe that we can go very many years at nearly three-quarters of a billion barrels a year production.

Every oil man knows also that when our fields fail to meet the requirements, oil prices will advance, subject to restraint only by the cost of imported oil in sufficient amount, or of artificial petroleum produced by the distillation of oil shale. Some help may come from coal carbonization or other sources, but, at best, coal products cannot be expected to fill your pipe lines nor keep your refineries in commission. According to the present status of researches in coal, it would appear that all the oils, tars and motor spirit to be obtained by treating all the soft coals mined in the United States, would be equivalent roughly, to only about one-fourth of our annual oil production, motor spirit would form but about one-seventh of the aggregate distillate. Further, the market will not, in any event, shrink apace with the ultimate decline in reserves. Those may be happy days for the operator, but no one can doubt that when the deficiency in domestic production becomes evident, this country will witness wildcatting done with an earnestness as yet unknown. Disregarding the adventurer and plungers, the quest for oil will be followed by the old companies at an average cost in many cases beyond the limit justified even by unprecedented prices. When this time comes the producer will demand the service of all that is known, not only as to the modes of occurrence of oil, and by way of skill in detecting the signs of its location, but even as to its sources and origin, and the principles controlling its movement and distribution. For when new reserves cannot be found and exploited at a profit his assets are depleting and his resources vanishing, possibly past all help.

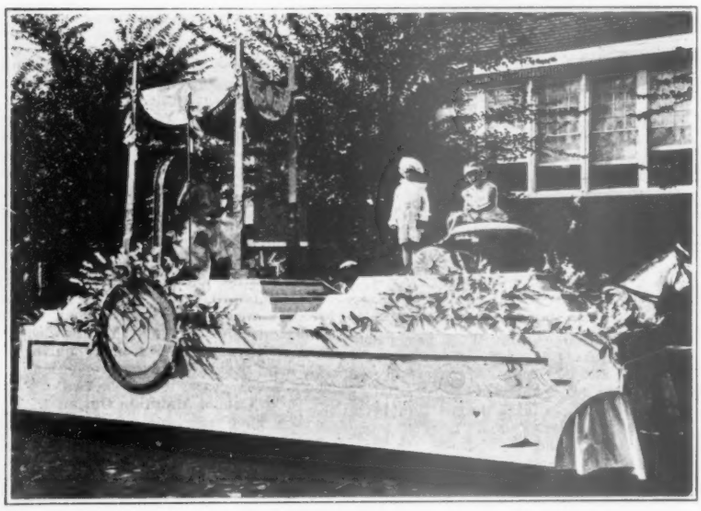
Rule of Thumb Searching

Geologists are fully agreed that oil and gas gather in anticlines and domes. Accordingly, at the present moment, the search for oil is mainly a search for anticlines and domes, more or less attention being given to the presence of the remoteness of supposed "source rocks" marine sediments, tectonics, protected storage, progressive regional carbonization, etc., according to the views, experi-

(Continued on Page 196-H)

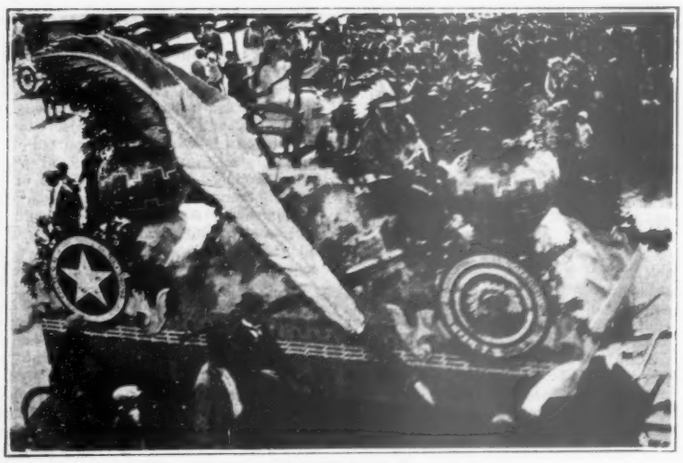
Petroleum Princesses at Exposition

Beauties of Oil Producing States as They Appeared in Floats in Pageant Opening Big Show. Miss Kansas is Chosen Queen

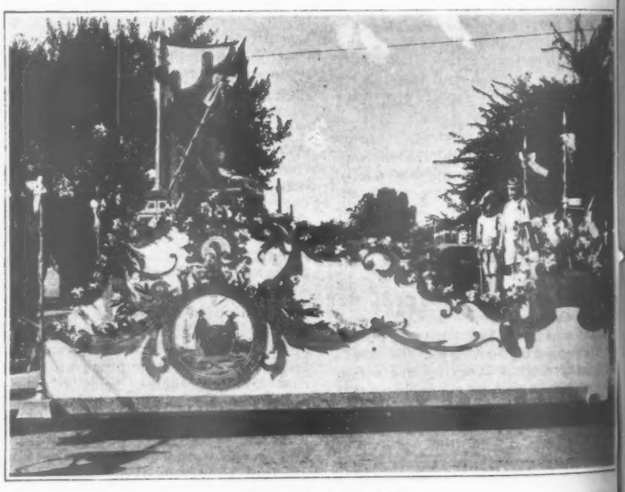


Miss Colorado

Miss Arkansas

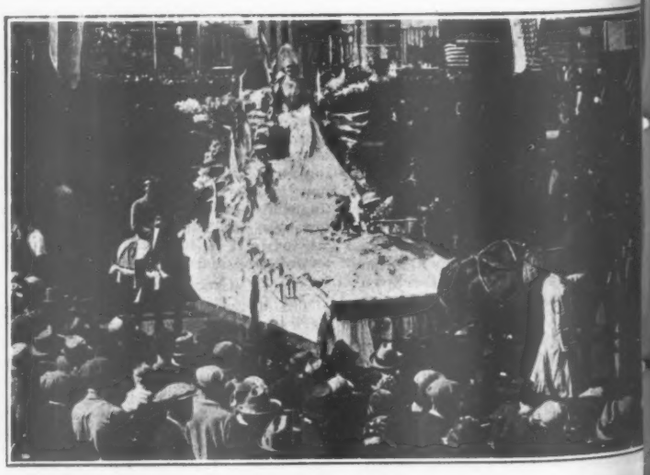


Miss Oklahoma

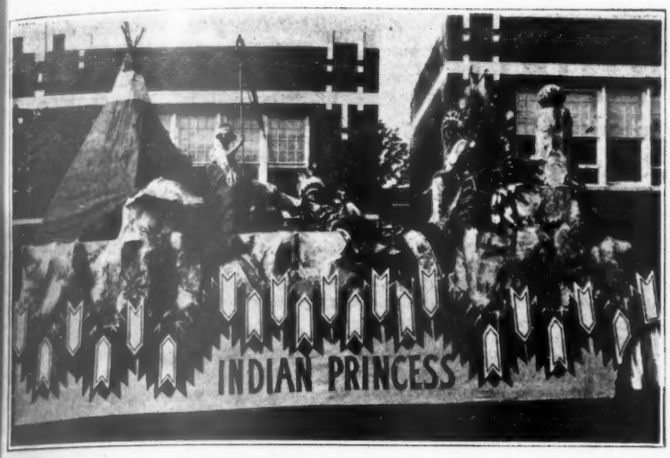


Miss West Virginia

Miss Kentucky

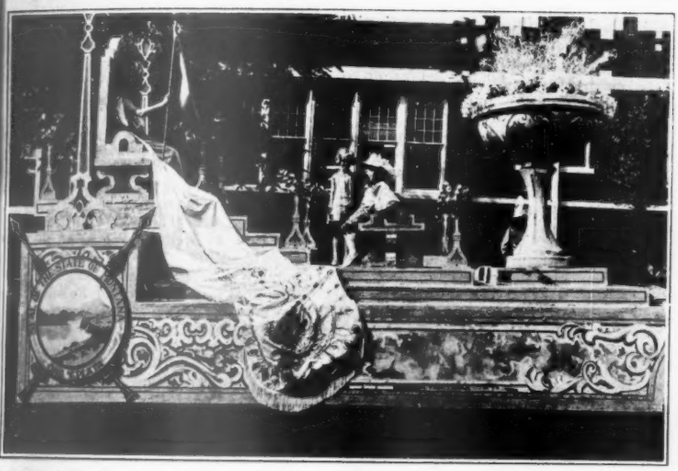


Miss Texas

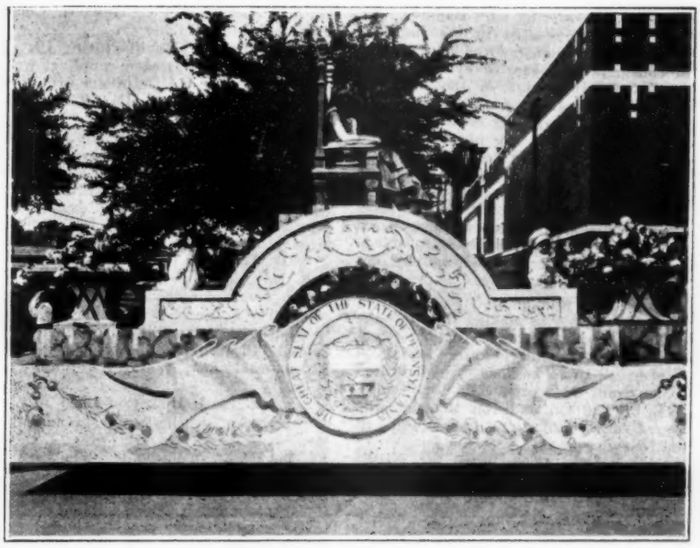


Indian Princess

Queen of 1923

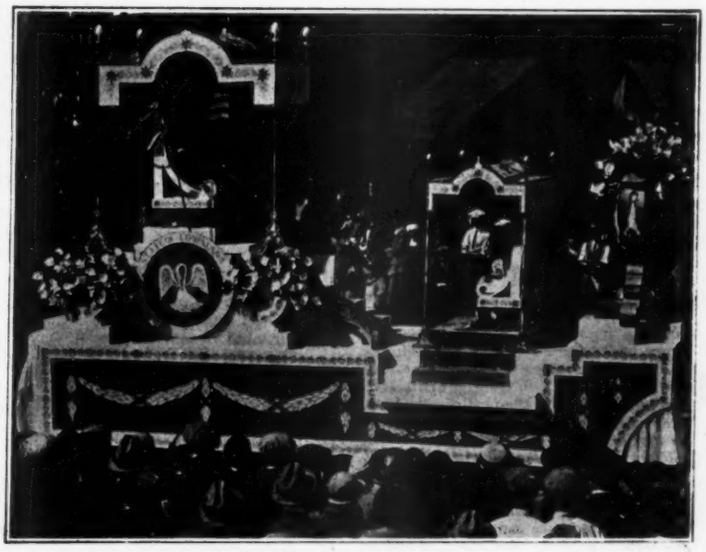


Miss Montana



Miss Pennsylvania

Miss Kansas



Miss Louisiana

NOTE—Pictures of Miss Wyoming and Miss Ohio on their floats appear on page 129 of this issue. King Petroleum is shown on page 213.

Improvements in Industry Equipment

Progress in Evolution of Oil Machinery, Tools and Processes Keynote of the Great International Petroleum Exposition at Tulsa

The real feature of the International Petroleum Exposition is, of course, the new ideas presented in oil industry equipment and machinery. That is the magnet that draws the oil men for whose benefit the Exposition has been prepared. They are familiar with the existing methods and material, however new to the general public, but to the men who are actively engaged in the producing, refining, transportation or marketing of petroleum and its products the Exposition is of interest and value chiefly for the opportunity to compare notes, to examine what is new and to gauge the trend of progress in the technical equipment.

The general comment is that the innovations exhibited at the Exposition this year have been exceptionally interesting and valuable. They have included practically every line of work and every branch of the industry. Producers have examined the very latest devices in drilling and in recovering oil. Refiners have been deeply interested in the improvements in their industry and in the trend of consumption suggested by related exhibits. Improvements in the transportation and handling of oil and oil products have been carefully scrutinized.

The chief value has, of course, been educational and so recognized by companies which arranged to have their men visit the Exposition for the information to be obtained on their work and processes. Individual oil men wandered from building to building, from aisle to arcade and back again scrupulously careful not to miss an exhibit.

Exhibitors who have spared neither time nor expense in making the show the greatest exhibition of oil industry machinery and equipment ever assembled were at all times anxious to explain and demonstrate their products. Representatives of The Oil and Gas Journal who toured each building and arcade obtained the following summary of the features of the show from those in charge of the exhibits.

Continental Supply Co.

The Continental Supply Co. had a number of manufacturers who exhibited several well known oil field products in connection with the supply company's own exhibits. The Ohio Injector Co., exhibiting with the Continental advised visitors that it expected soon to introduce a new tight seat valve which is something new in the line of valves. This firm also exhibited the Chicago injector and standard brass gate valves and standard iron body gate valves. Several attractive displays were made by the Tnemec Paint & Oil Co. which supplies the paints distributed by the Continental. Something entirely new in milling tools was shown by the Gray Tool Co., which also distributes through the Continental. The milling tool is one of the most recent products of this concern. The Titusville Iron Works Co., manufacturing an extensive line of oil field equipment, which is distributed through the Continental Supply Co., has recently introduced an improved type of straight-away rotary which has been termed No. 6. The new rotary contains a number of mechanical refinements which make it distinctive. The rotary table, in the new construction, completely shrouds the bearing raceway for the exclusion of mud and grit. The holddown brackets extend almost entirely around the table and have been made oversize from semisteel in order to form a perfect bearing with the steel table. The renewable race rings in this rotary are forged, weldless steel rings of special alloy to give maximum wear. The cone roller bearings are drop forgings, heat treated and accurately ground to size. The manufacturer claims for this rotary that every part has been made from engineering specifications to insure the best possible service and that the workmanship and finish is much above that ordinarily seen in drilling equipment. Among the many other allied exhibitors also the Continental is featuring the Phomene (Foam Type) fire extinguisher, the product of the Pyrene Manufacturing Co., which is recommended as the ideal protection for petroleum properties. Phomene forms a blanket of foam bubbles filled with carbon dioxide gas which shuts off the oxygen, choking the blaze. It floats on the surface of any liquid and sticks to the walls and ceilings of the buildings made of inflammable materials. The Jefferson unions distributed by the Continental have a ground brass to iron joint which always fits, as the parts are first machined to a true arc and then ground in pairs after which they are never separated. Other allied exhibitors include Youngstown Sheet & Tube Co., Titusville Forge Co., Gardner Governor Co., Hercules Corp., and Mechanical Rubber Co.

S. R. Dresser Manufacturing Co.

Various sizes of Dresser couplings were displayed by the S. R. Dresser Manufacturing Co. of Bradford, Pa. The middle rings of these couplings are hammer welded and the flanges are pressed from solid plate. The makers say that the centers do not split and that the flanges stand up under enormous strain. They are regularly equipped with heavy section standard gasoline resisting packing rings.

Donovan Boiler Works

A Donovan boiler, in operation, furnished steam for the cable tool drilling well. The boiler is of the same type that is being used for similar work in many oil fields of the country. It is made by the Donovan Boiler Works, Parkersburg, W. Va.

R. & J. Dick Co., Inc.

Samples of belting were prominently displayed by R. & J. Dick Co., Inc., of Passiac, N. J., in its booth. The various samples showed the different widths and plies used ordinarily in the oil fields.

American Steel Rig & Reel Co.

The combination wooden and steel derrick was displayed by the American Steel Rig & Reel Co. This derrick affords a reinforced wooden derrick for drilling purposes and gives a steel pumping derrick for economical operation after the well is completed.

Gustin-Bacon Mfg. Co.

The all-service drilling and pumping belt was featured by the Gustin-Bacon Manufacturing Co. It is adapted to heavy service, is constructed of heavy duck and is rubber covered and carefully stitched.

Black, Sivalls & Bryson

A group of tanks, some of which were cut away to show the interiors, was displayed by Black, Sivalls & Bryson of Bartlesville. These tanks show the vapor tight construction designed to hold the gravity of the oil during storage on the lease, thus giving the producer the advantage of the higher price that goes with the lighter grades.

American Cable Co.

Samples of wire lines and an exhibit showing the wire line from the ore to the finished product was offered by the American Cable Co. in this concern's booth.

Metal Barrel Corporation

Containers for refined oils and lighter products were exhibited by the Metal Barrel Corp. in its booth. The containers ranged from the small and light materials to the larger barrels for the lubricants.

Sterling Steel Co.

Electric steel castings of many sizes and descriptions were shown by the Sterling Steel Co. of East St. Louis, Ill. The electric steel method was explained to the visitors and the process of making many of the articles was explained.

Frick-Reid Supply Co.

The Frick-Reid Supply Co. had a separate building near the center of the grounds. The huge Reid band wheel power at the top of the building was one of the most interesting of the exhibits. It was rotated under power and showed the visitors how many wells could be pumped with one engine. One of the most interesting exhibits was the 6-inch working barrel and comparable sized valves shown by the Axelson Machine Co. The pump, advertised as the largest of its kind, was made with a number of others, for special foreign use, where a great amount of fluid must be lifted. It is much like the ordinary pump used in wells which are not able to flow the oil, its gigantic size being particularly noticeable. The Ratigan hooks and elevat[ors] were among the more prominent artic[les] displayed in the Frick-Reid Booth. T[he] items of this concern which were attra[c]ting particular attention were the sucker sucker rod hook and the safety latch hook, in which special safety latch characterizes the most notable improvement. This latch operates so that practically eliminates the danger of dr[op]ping the rods or tubing. The sucker r[od] is said to have a testing power of a weig[ht] of 50,000 pounds. The tubing hook, similar to the sucker rod hook, but will stand a strain of about 175,0[00] pounds. Both hooks are ball bear[ing] equipped. The "Camel Hair" belting w[as] exhibted by the Rossendale-Reddaw[ay] Belting & Hose Co. The exhibit of t[he] Joseph Reid gas engines was very com[-] plete with several of the later model [en]gines running. The growing popularity of the use of Reid twin engines provide[s] for continuous operation of the pow[er]. Either engine may be used, only [one] being necessary for work. The auxiliary enigne is added to insure continuous [op]eration, providing for emergencies such [as] necessary repairs to the other engin[e], cleaning, etc. The power will handle [as] many as 14 wells averaging up to 2,[00] feet in depth. The National Tra[ns] pumps, in several types, Jones & Laugh[lin] line pipe and fittings and Roebling wire line and Whitlock cordage completed [the] line of special manufactured articles [dis]tributed through the Frick-Reid Supply Co. and exhibited in the company's booth.

International Supply Co.

The International Supply Co. had [one] of the largest of the inside exhibits [in] which many of the popular lines of equipment handled by this concern were [at]tractively displayed. The line included the products of the Kewanee Boiler Co. and the transmission gears, shafting and other auxiliary items made by the Dodge Manufacturing Co. This complete line also included pulleys, roller hangers and bearing friction clutches. The Dur[ant] powers, made by the Union Machine Co. were also a part of this exhibit. Leather belting, cups for pumps, packing and lace leather were shown by the Graton-Knight Manufacturing Co. Lufkin rules of all sizes and types were shown for the men who find them advantageous in refinery or field. This line included tape measures, as well as steel lines, wooden and metal rules and many other kinds. Among other products were the Darling valves; American Steel & Wire Co.'s drilling cables and other wire equipment. McGregor working barrels and a model of the Slater turnbuckle derrick equipped with Oklahoma rig irons, reduced to scale. Nearby was the display of the Table Cordage Co., showing manila rope in many sizes and a general line of rubber goods manufactured by the New York Belting & Packing Co., together with specimens of casing and couplings from the South Chester Tube Co.'s mills.

Lucey Manufacturing Co.

The Lucey Manufacturing Co. displayed as the central feature of its exhibit a steel crown block shelf for rotary drilling with a pulley made of manganese steel operating on a polished shaft with Timken roller bearings which are guaranteed to carry a load of more than 17[5],000 pounds. The block is lubricated by means of the positive Alemite lubrication system, which insures that every working part will be protected. A cutaway model of the new turbalite generator with three bearing suspensions was also shown. Among the many other field articles distributed by this concern is the Lucey chrome fishtail bit, and a miscellaneous assortment of small tools such as rope clamps, tool joints and mechanical goods of every description. One of the most

INTERNATIONAL CONGRESS SPEAKERS DISCUSS INDUSTRY FROM MANY ANGLES

No one could have sat through the thr e sessions of the Petroleum Congress and heard the fifteen different addresses without realizing that even though each speaker approached the subject of petroleum from a different angle the basic thought in each man's mind was the same.

Probably one can best appreciate the different angles from which the industry was discussed by noting the background from which each speaker approached the one subject, Petroleum:

Governor of Oklahoma	M. E. Trapp
United States Senator	J. W. Harreld
United States Geological Survey	George Otis Smith, Director
United States Bureau of Mines	M. J. Kirwan, Supt. Bartlesville Sta.
National Research Council, David White, Chairman Div. Geog. and Geol.	
United States Bureau of Standards	T. S. Sligh
Supt. of the Five Civilized Tribes	S. E. Wallen
State Conservation Officer	Fay M. Conner
United States Chamber of Commerce	Richard F. Grant, President
Waukesha Motor Company	H. L. Horning, President
Russian Oil Trust	A. Serebrowsky, President
McGill University	Prof. Charles M. McKergow
National Petroleum Association and Western Petroleum Refiners Assn.	Fayette B. Dow, Counsel
"Oil, from the People's Standpoint"	Charles J. Wrightsman

From this list it is obvious that the background from which each speaker approached the one common subject was entirely different—and the addresses printed herewith are the best evidence that men are thinking of the oil industry constructively. And when an industry's problems are approached constructively, it has little to fear.

portant changes recently announced is in the new Lucey rotary swivel in which the flanged end of the washdown chamber prevents leaks entering the bearing chamber. Adjustments on the roller bearing can be made from the outside by means of three cap screws. Timken bearings are used. The bronze packing gland is adjustable from the outside.

Bruce-Macbeth Engine Co.

A Bruce-Macbeth 2-cylinder vertical gas engine, operating without water jackets, was exhibited in the booth of the Bruce-Macbeth Engine Co. of Cleveland, Ohio.

Kansas City Hay Press Co.

A lightning brand oil field straight lift pumping jack was exhibited by the Kansas City Hay Press Co. of Kansas City, Mo. Lightning powers for pumping oil wells in groups were also in operation, as were the Stover engine and Gardner duplex pump units.

Worthington Pump & Machinery Co.

The Worthington block valve pump, delivering 400 gallons per minute at a pressure of 125 pounds, capable of handling oil at a temperature of 450 degrees Fahrenheit, was one of the outstanding features of the exhibit by the Worthington Pump & Machinery Co. This concern also showed a single cylinder direct connected 80-horsepower four-cycle gas engine compressor and a two-cylinder vertical Diesel engine which was belted to a generator that supplied the lights to the Exposition grounds.

Hinderliter & Staples Test

Cable tools were being used on the Hinderliter & Staples No. 2 Chicken Farm test, being drilled in the center of the Exposition grounds. It will be remembered that the Hinderliter & Staples No. 1 Chicken Farm was completed at the 1923 Exposition, striking nothing at a few feet. Following equipment was being used on the 1924 Chicken Farm well: Wertzberger derrick, Ideco steel bull wheels, Kliewer steam snuffer, Billings & Spencer chain tongs, Deck Clamp Tank Co. forge, etc., Wickwire Spencer wire drilling line, Bovaird casing and tubing elevators and spiders, Wall rope, Hazard casing line, Wright chain hoist, Parkersburg steel crown block, calf wheel, and tug on band wheel, Mason temper screw lift, Berry wire line shock absorber, Bradford 6-inch ideal rig irons, S & B chain driven sand reel, Texaco roofing, Hinderliter drilling and fishing tools, Warren steam engine, Donovan boiler with Doreco burner, Frick-Reid and Frost generators, Shaffer water gauges and Rossendale-Reddaway Camel Hair belt. When finished the well will be plugged with Eagle lead wool.

Pioneer Tank & Boiler Co.

A self contained Tulsa pumping unit operated by an electric motor was exhibited by the Pioneer Tank & Boiler Co., along with several small tanks.

Hopkins Motor Co.

Ball bearings for the main bearings of the motors in International trucks and tractors were featured in the Hopkins Motor Co. booth. As a result of the ball bearings used in these particular parts of International engines, this concern makes a guarantee on the main bearings against wear. Bay City winches in both the horizontal and capstan types, mounted on trucks, were exhibited by this company also.

Barber-Greene Co.

A ditcher which can dig post holes as well as trench was exhibited by the Barber-Greene Co. of Aurora, Ill. It operated by means of a four-cylinder gasoline engine and all equipment is mounted on caterpillar treads.

Miller Improved Gas Engine Co.

The new Miller-Watts 225-horsepower twin cylinder four cycle direct gas engine driven compressor was the main attraction at the exhibit of the Miller Improved Gas Engine Co. The most outstanding improvement in this new model possibly is the new type force feed positive atomizing lubrication system for the cylinders. The new enclosed type 50-horsepower Miller gas engine was also displayed.

Buckeye Traction Ditcher Co.

A ditcher of the wheel type was shown by the Buckeye Traction Ditcher Co., of Findlay, Ohio. The entire ditcher is mounted on caterpillar treads with two auxiliary wheels at the front.

Traction Machine Co.

The Traction Machine Co. of North Baltimore, Ohio, exhibited a pulling and cleaning machine which displayed a walking beam from a small pipe mast. The beam was reinforced with steel plates and the entire equipment was portable, being mounted on caterpillar treads.

Corn Farm Well No. 2

A second cable tool test was being conducted at the Corn Farm Well No. 2. The equipment was supplied by the following concerns: Tulsa Rig & Reel Manufacturing Co. furnished the American wooden-steel derrick, which was erected by the Ranney Wilson Rig Building Co.; Broderick & Bascom wire line, Parkersburg rig irons, steel band wheel tug, chain driven sand reel, steel calf wheel, and steel crown block, Fenwick-Reddaway Manufacturing Co. Iwana belt, which has been in service more than two years, Westinghouse twin motor electric drive, Dunn casing tongs, Western Supply drilling tools and fishing tools, and American Steel Co. replacement bull wheels.

Hughes Tool Co.

A rock bit tester was being operated by the Hughes Tool Co. The tester was a Type P Sullivan core drill operated by electric motor. Heavy blocks of limestone were used for the tests. The Hughes rock bits were fixed into the core drill and lowered to the rock, gradually eating a hole into it as the drill rotated. The action of the fluid flush was observed, as well as the operation of the drill as it ate into the stone.

Marion Machine Foundry & Supply Co.

A miniature belt driven double eccentric pumping power showing the method used in pumping a large number of wells with one engine, was the exhibit which attracted considerable attention in the booth of the Marion Machine Foundry & Supply Co.

Wilson Manufacturing Co.

The Wilson Manufacturing Co. of Burkburnett, Tex., showed a heavy duty Wilson winch for use in connection with Fordson tractors.

Rock Island Plow Co.

At the exhibit of the Rock Island Plow Co. of Rock Island, Ill., tractors and tractor winches were also exhibited. The tractors are well adapted to use in the oil fields and the winches have a wide speed range varying from 100 to 400 feet per minute. The tractors are capable of a speed of from 1 to 7 miles per hour.

Power Manufacturing Co.

A hot metal plug in place of spark plugs was used in the operation of the Primm oil engine being displayed by the Power Manufacturing Co. of Marion, Ohio. The metal plug is heated before starting the engine. When hot it is inserted and the engine is turned over, starting quickly, and operating continuously with no additional trouble. Crude oil or distillates including kerosene and fuel oil may be used to operate the engine.

Trumble Gas Trap Co.

A Trumble oil and gas separator with a section removed to show the action of the valve within was exhibited by the Trumble Gas Trap Co., of Los Angeles.

Tulsa Tank Co.

To show that it was not necessary for good wooden tanks to be destroyed, the Tulsa Tank Co. exhibited a gas tight steel deck for wooden roofs.

Franklin Valveless Engine Co.

The Franklin valveless engine, convertible for either oil or gas as fuel, was exhibited by the Franklin Valveless Engine Co. of Franklin, Pa. Among other things it has an air cooled piston, removable cylinder liner, counter balance on the crank shaft, positive control at all times, bath lubrication, with all reverse clutch bearings and gears running in oil.

American Tank Co.

The new Jay Walker gas trap and flow tank were shown by the American Tank Co., of Oklahoma City, in addition to the bolted stock tank having interchangeable units.

American Appraisal Co.

The American Appraisal Co. of Milwaukee displayed charts, diagrams and specimen reports explanatory of the methods by which the company establishes provable values of oil and gas properties from oil reserves to filling stations.

Acme Fishing Tool Co.

The Acme Fishing Tool Co., of Parkersburg, W. Va., exhibited fishing tools, both old and new, including the old Acme Casing Kicker, jar ring and jar tongue tools. Robinson Grabs Trip Combination Socket and Thompson Packer Release. The use of these tools were explained in detail.

Goddard-Thomas Manufacturing Co.

The Goddard-Thomas Manufacturing Co. of Tulsa featured the Seamless Drawn Cylinders for high pressure gases and hollow forgings in finished or semi-finished forgings. It also had on display a Quimby Screw Pump manufactured by the William E. Quimby, Inc., of Newark, N. J. These pumps handle water, oils and semi-liquids.

Crucible Steel Co. of America

The Crucible Steel Co. of America, New York, exhibited the hammered bit and jar steel it manufactures. Cross sections of the steel were shown and the manufacturing processes explained.

American Cast Iron Pipe Co.

The American Cast Iron Pipe Co. of Birmingham, Ala., had samples of cast iron pipe and fittings for various services. A model coil of simplex condenser piping was shown together with samples of oil pipe in use from 35 to 85 years.

Gantz Tank Co.

The Gantz Tank Co. of Tulsa, exhibited a stock tank and the half section of a flow tank. These tanks are bolted. An interesting feature are the bottoms, an Armco product.

Mathieson Alkali Works, Inc.

The Mathieson Alkali Works, Inc., of New York, featured the patented Mathieson Hypochloride Process for refining. This company manufactures a complete line of chemicals used in refining for years. It also exhibited a miniature multiple unit tank car for the transportation of liquid chlorine.

H. Rickman

H. Rickman of Tulsa, featured his S-R Tubing Protector, which it was said does away with split tubing, pin or boxes and eliminates crystallation of rods.

International Nickel Co.

At its exhibit in the West Virginia Building and many other booths at the exposition the products of the International Nickel Co. of New York, were displayed. The Monel metal manufactured by this company is having a wide use in the oil industry due to its resistance to chemical corrosion. The exhibit covered a few of these uses including valves, bolts, nuts, castings and wire.

NATIONAL SERVICE RECORDS ARE EXEMPLIFIED IN ADVERTISEMENT

Left to right—James Hayes, James H. Barr and William Schlift.

An advertisement, beautiful and unique both in appearance and in conception, is that of the National Supply Cos. which appears on pages 130 and 131 of this issue of The Oil and Gas Journal. The advertisement, in three colors, is an adaptation of the service pin awarded to National employes who have been in the service of the organization five years or longer. The pin has 10 stars on the outer edge of the shield and each five years of service entitles an employe to a diamond to be inserted in a star. In determining the length of service an employe is not penalized for involuntary layoffs, sickness or time spent in the service of our country during the World War.

It is a fitting coincidence that the chairman of the board, James H. Barr, should be one of the three oldest employes in point of service. Mr. Barr is the wearer of an eight-diamond service pin which symbolizes 40 years of continuous service with the National organization. He shares this honor with James Hayes and William Schliff of the Toledo, Ohio, plant.

There are 529 National employes who have been awarded service pins. Of this number three have a service record of 40 years or more, three have 35 years of service, 13 have over 30 years of service, 21 have 25 years' service, 56 have served 20 years, 57 have over 15 years' service, 109 have over 10 years and 267 were awarded pins for 5 years or more of service.

The purpose of running this advertisement during the International Petroleum Exposition is to give service recognition to National products. Each product listed has been known to the oil and gas producing fraternity for many years. Thousands of users will recognize many old friends in the list which includes National Rigs, National Powers, National Titan Sucker Rods, National Boilers, National Rig Irons, Ideal Drilling Tools, Ideal Twin Engines, Ideal Slush Pumps, Ideal Draw Works and Ideal Rotaries.

Pittsburgh Meter Co.

The Pittsburgh Meter Co., of East Pittsburgh, Pa., displays Keystone gasoline service station meters, Westinghouse orifice meter gauges, house meters, a volume and pressure recorder and the Ironclad cast iron dry-gas meter.

United States Rubber Co.

A general oil country line of belting and rubber packing is shown by the United States Rubber Co. This includes the U. S. drilling belt, field hose, gasoline-proof composition gaskets, and oil field packing.

Lunkenheimer Valve Co.

The Lunkenheimer Valve Co.'s exhibit displays acid valves, recent improvements in gate valves as well as the red Clip valve and the gray Fer-renewo valve with renewable nickel seats and discs. A helpful book called "The Guide to Better Service" is distributed.

C. M. Heeter Sons & Co.

Packers, swabs corrugated friction sockets and sand pumps are included in the line shown by the C. M. Heeter Sons & Co.

Borden Co.

The Borden Co., of Warren, Ohio, has a pipe threading machine on display which is so new that it has not been named, and the company is offering a prize of $100 for the best trade name for it. A line of Beaver dies and machines for pipe threading and cutting are shown.

Paul Arbon & Co.

The Paul Arbon & Co. has a display comprising many of the oil well specialties carried by that firm, which include a self release swab, Prosser socket, Wigle expansion piston, Standlee oil saver, Burns socket, Arbon steam snuffle, a control casing head, Herrick wrench and a number of other tools.

Highland Body Manufacturing Co.

The Highland Body Manufacturing Co., of Cincinnati, shows a model of its truck cab for all kinds of weather. It specializes in this line.

Clifford Manufacturing Co.

Lubricated differential vapor valves for checking evaporation in crude storage tanks are being demonstrated by the Clifford Manufacturing Co.

Guiberson Corp.

The Guiberson Corp., of Los Angeles, Cal., is introducing a number of new features at the exposition including its self sharpening new roller bit, rotary tool joint, underreamer, a new feature in swabs, tubing tool joint and slush pump piston along with the company's regular line of tubing, catchers, swabs, tongs, etc.

Kansas City Structural Steel Co.

The Kansas City Structural Steel Co., Kansas City, Mo., features the Ellis traveling barrel in its display. This company is known for its structural steel work in the refinery trade as well as for its tanks. The inner seal, a light sheet steel deck carried on air-tight floats is shown. It is claimed that the deck seals off the surface of the oil from the air in the upper part of the tank.

Gilbert & Barker Manufacturing Co.

A demonstration of gasoline station pumps, tanks and lubricating outfits is made by the Gilbert & Barker Manufacturing Co. Five and ten-gallon models of the company's vapor proof tanks are exhibited.

Refinery Supply Co.

The Refinery Supply Co. of Tulsa, shows numerous instruments, the Hays oxygen analyzer to detect leaks in casinghead gas lines; automatic carbon dioxide recorder for combustion under stills or boilers, with a special showing of the Baume gravity recorder for which great economy is claimed as well as accuracy.

W. C. Norris Manufacturing Co.

The exhibit of the W. C. Norris Manufacturing Co. of Tulsa includes special forgings, truss rods, turnbuckles for buildings; gas-tight tops for flow tanks, Norris swaged nipples and bull plugs and jack frames.

American Radiator Co.

Oil condensing sections and Sterling run down sections for efficient cooling in the refinery trade are shown by the American Radiator Co.

C. J. Tagliabue Manufacturing Co.

The C. J. Tagliabue Manufacturing Co., of Brooklyn, N. Y., has a general line of refinery instruments but is specializing in its automatic temperature control for fractionating towers; the Tag peerless controller, the automatic temperature control for wax sweaters; Saybolt viscosimeters, the temperature of which is automatically controlled and the Tag Hespe red-reading column mercury thermometer.

Walworth Manufacturing Co.

The Walworth Manufacturing Co. of Kewanee, Ill., is demonstrating its line of wrenches, collars, unions and valves. Its line of valves on display ranges from very large to very small sizes.

Wheeling Steel Corporation

Couplings, pipe, drums and barrels are shown in the booth of the Wheeling Steel Corp. of Wheeling, W. Va., and a comfortable rest room is provided.

Chicago Bridge & Iron Works

The Chicago Bridge & Iron Works of Chicago, is demonstrating the Wiggins floating roof, which can be used on tanks up to 80,000 bbls. capacity and which is vapor proof. A section of a double butt strap joint of the kind used on 80,000-bbl. tanks is shown. The Hortonsphere, a pressure tank for storing natural gasoline under pressure, is a part of the company's exhibit.

Detroit Graphite Co.

In the exhibit of the Detroit Graphite Co. Degraco interior tank liner was one of the features. This covering protects against the effects of fumes, saving the inside of the tank roof from destructive corrosion. The company's representatives also told of the good points of its outside paints used on storage tanks, tank cars and other metal surfaces in oil industry use. The 325 aluminum paint used on the outside of tanks containing very volatile oils, it is claimed, will keep the temperature of the contents to a minimum.

M. W. Kellogg Co.

The M. W. Kellogg Co. of New York has a model Cross Cracking plant on display which is attracting unusual attention. It is showing the merits of its line of forged welded stills and fabricated steel pipe.

Sherwin-Williams Co.

Ebonal, a pipe paint, is the feature of the exhibit of the Sherwin Williams Co. of Cleveland, Ohio, which also includes Kromik, a primer for tanks and tank cars. The company claims for Ebonal that it is free from any chemical action within itself. It is a by-product of aniline dye.

Sterling Steel Co.

A miscellaneous showing of electric steel castings is made by the Sterling Steel Co. of East St. Louis, Mo.

Jarecki Manufacturing Co.

The Jarecki Manufacturing Co. of Erie, Pa., exhibits brass valves and fittings; a 6⅝-inch full-way drilling gate valve and a demonstration of the water proof Dick belt, operating in water.

St. Louis Surfacer & Paint Co.

The St. Louis Surfacer & Paint Co. of St. Louis, Mo., which makes paint that is widely used on tank cars, refinery tanks and stills, in natural gasoline plants and on crude oil storage tanks provided a rest room, while its representatives told the story of the advantages of their line.

Universal Oil Products Co.

The Universal Oil Products Co. provides a comfortable rest room in the Texas building.

Stanley Belting Co.

The Stanley Belting Co. of Chicago demonstrates the flexibility of its solid woven cotton belts and shows samples of its belting.

United Iron Works

The United Iron Works, Kansas City, has a model of a 10,000-bbl. tank on display and shows tank fittings, but the gem of its display is a water cooling plant in operation which has been furnishing refrigerated water to many thirsty mortals. One drink of that good water was enough to loosen up any oil man interested in the line the company carries, and make a prospect of him. A centrifugal pump, cast iron fittings, bull plugs, casing heads and swedge nipples were a part of the exhibit.

Foxboro Meter Co.

A broad range of orifice meters, recording gauges, recording thrmometers, and other instruments is shown by the Foxboro Meter Co., Foxboro, Mass.

Dempster Mill Manufacturing Co.

The Dempster Mill Manufacturing Co. of Beatrice, Neb., which has been making farm machinery and water pumps for many years is now making a bid in the oil industry with a line of hand and power pumps to unload oil and oil products from tank cars and tank wagons into bulk storage. It has a display of several sizes and styles of pumps.

Eagle Picher Lead Co.

The Eagle Picher Lead Co. of Joplin, Mo., displayed many specimens of its lead products, including pipe, several grades of babbitt and Eagle Lead was used in plugging off water in oil and gas wells.

Morrison Brothers

Morrison Brothers of Dubuque, Iowa, who makes refinery equipment and boiler and service station equipment, are exhibiting specimens of their inswing joint vents, by-pass valves, line valves, rotary pumps, faucets, hose nozzles, ball socket joints, etc., used in the oil refining and marketing industry.

Murray Tool & Supply Co.

The Murray Tool & Supply Co. of Cleveland, Okla., makes good use of its booth space. It is making a drive on its special collar buster and its jar down sockets. It carries specimens of the Fairbanks line of renewable gate and globe valves and Dart bronze to bronze ground joint unions; Wickwire-Spencer Steel Corp.'s wire lines and Murray bits and jars.

American Schaeffer & Budenburg Corp.

The American Schaeffer & Budenberg Corp., Brooklyn, N. Y., has a comprehensive display of meters and recording gauges.

Clark Machine Co.

The Clark cleanout winches for Fordson tractors displayed a unique device whereby the front wheels of the ordinary Fordson tractor were advanced under a special frame over which the winch was set. Clark winches were also displayed on other types of tractors. They are manufactured by the Clark Machine Co. of Wichita Falls, Tex. Clark cleaning out machines, made by the same concern, are also mounted on a tractor. They have a pipe mast and a cog attachment for rotary operations in reaming out old wells.

Bartlesville Supply Co.

The M & S well reamer, made by the Bartlesville Supply Co. of St. Louis, Mo., is a four-prong reamer which has large expansion when rotating. It is used to remove paraffin and b.s. from the producing sand and cuts away all sand that has been mudded off in the wells that have caved. It reams to a diameter of 5 feet. Tubing is used to rotate the reamer and sucker rods control the expansion.

Dewey Friction Wheel Co.

An ordinary Ford car was used as the motive power for a cleaning out machine of the type used ordinarily to pull rods and tubing, displayed by the Dewey Friction Wheel Co. of Bartlesville, Okla. The friction wheels are concave and fit the rear wheels of the automobile which

EL DORADO BOOSTERS AT THE PETROLEUM EXPOSITION

El Dorado, Ark., was well represented at the Exposition, its operators and representative citizens attending 150 strong under the leadership of the El Dorado Chamber of Commerce in a special train. At Claremore, Okla., the party was met by a band and entertained. The entire party was provided with badges and sashes of black and yellow, and upon reaching Tulsa marched through the streets to the registration office, receiving a warm welcome.

Preparing for a gusher, well No. 2 on reclaimed area of the Bibi-Eibat Sound.

All-Russian Oil Syndicate

Oil Fields in Bakou (Azneft), Grosnii (Grosneft), Emba (Embaneft.)

Sells Best Quality and any Quantity of:

Lubricating Oils	**Kerosene**	**Fuel Oil**
Gasoline	**Crude Oil**	**Naphten Acid**

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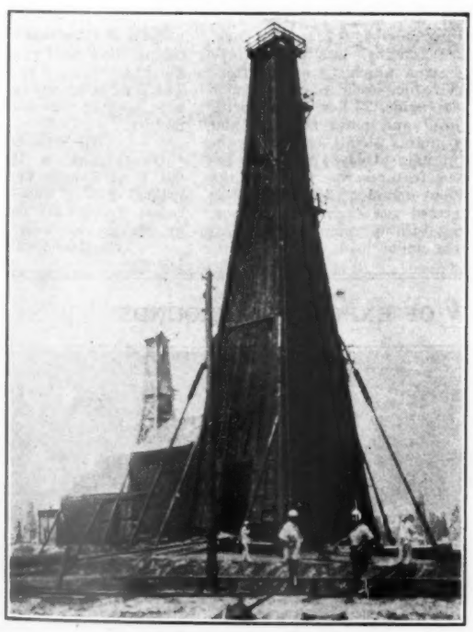


Gusher No. 23 on reclaimed area of the Bibi-Eibat Sound.

Sliding in a control block to divert the gusher to open storage. Well No. 67, Sourachani Oil Field.

is backed into place to supply the power. By moving the automobile wheels into the clutch wheels while the engine is running, power is transmitted to the machine which will lift a dead weight of 6,240 pounds.

Clark Brothers Co.

Clark Brothers Co. of Olean, N. Y., exhibited a new Clark four-cycle, 175-horsepower, twin unit, direct connected gas engine compressor; Clark Junior drilling engine and the Clark single cylinder two-cycle 80-horsepower gas engine compressor.

Bessemer Gas Engine Co.

The Bessemer Gas Engine Co., of Grove City, Pa., displayed its new four-cycle 200-horsepower twin unit direct driven gas engine compressor.

Hercules Motor Corp.

The exhibit of the Hercules Motor Corp., of Canton, Ohio, near the Peoria Avenue entrance, consists of a four-cylinder vertical gasoline engine which is designated as the company's adjustable power unit. The unit is mounted on skids and can be moved from one location to another with ease.

Fenwick-Reddaway Manufacturing Co.

Camel's hair from the raw product obtained in Asia to the finished belts was the item of chief interest at the Fenwick-Reddaway Manufacturing Co.'s exhibit. The camel's hair was shown as it is received at the factory in bales, the combed product was also displayed and the twisted hair shown as it is twined into the threads which form the finished belt. A belt cut and unraveled, showing the hair, was also displayed.

International Derrick & Equipment Co.

An exact model of a drilling well, fully equipped, was shown by the International Derrick & Equipment Co. The derrick was an all steel combination drilling structure, completed with all the latest steel devices. It was shown in actual operation.

Advance Rumely Thresher Co.

The Advance-Rumely Thresher Co., of La Porte, Ind., showed a tractor winch built especially for a 16-30 OilPull tractor. The tractor was in operation and the winch was demonstrated. An auxiliary drum on the winch increases the speed of the pulling operations to 223 feet per minute. Diameter of the drum is 13 inches.

Wellman-Seaver-Morgan

The Wellman-Seaver-Morgan gas-gasoline drilling engine was one of the most interesting developments observed. This four cylinder 65-horsepower vertical automobile type engine was belted to the driving clutch and the elasticity of the engine, including the high speend for pulling out was demonstrated.

Sullivan Co.

Konset, a chemical reagent that hastens hardening of cement used in cementing wells was displayed by the Sullivan Co., of Memphis, Tenn. Konset was claimed to be a substance that brings about a reaction, but which does not enter into the finished product as a compound. It is termed a catalyst. It is claimed for Konset that it assists in the hardening of cement under adverse conditions also.

Halliburton Oil Well Cementing Co.

The successful cementing of 12,000 wells with the Halliburton-Perkins process was placarded to the producers by Erle P. Halliburton, of the Halliburton Oil Well Cementing Co. In the same booth was displayed samples of Lumnite cement, for which the makers claim greater strength at the end of 24 hours than is developed by Portland cement in 28 days. The unique qualities of Lumnite cement make it particularly adapted for oil well work, according to the manufacturers. The Atlas Lumnite Cement Co. of New York City.

De Laval Separator Co.

A DeLaval Centrifugal oil purifier was shown in the booth of the De Laval Separator Co., of New York City. These purifiers are widely used in the separation of water and b. s. from crude oil.

Western Supply Co.

The new three section grip wire line clamp for making the connection between temper screw and wire line in a drilling well was displayed by the Western Supply Co. in its booth. Another feature of this clamp is the quick opening and shutting device which also insures positive and secure action on the part of the grips.

Le Bus Rotary Tool Works

The New Eureka tong for rotary work was displayed by the LeBus Rotary Tool Works, of Electra, Tex. The grips are inserted in four sections and have teeth all the way around the pipe or joint. A handle controls the opening and closing of the tong. It has a perfect balance, is controlled easily and carries all sizes of pipe, casing and tool joints.

Williams Oil-O-Matic Heating Co.

One of the most popular types of home oil burner heaters was exhibited by the Williams Oil-O-Matic Heating Co., of Bloomington, Ill. The Oil-O-Matic burns fuel oil instead of kerosene or distillate. It can be installed in any type of furnace or boiler. Four important distinctive features are claimed by the makers: Automatic gas valve, metering pump, atomizing pump and electric safety switch.

Elliott Core Drilling Co.

The apparatus used by the Elliott Core Drilling Co. in taking cores of the deep rotary holes in California together with some sample cores were displayed in that concern's booth. The outfit was a double-barrel core drill consisting of an outer and inner barrel and cutting bit which are fixed on the end of the drill pipe. Sample core of the deepest hole in the world, recently completed by the Union Oil Co. was shown.

Green Cement Shot

The Greene cement shot, a new method of plugging, sidetracking, bridging, testing or abandoning oil or gas wells was shown in the same booth. The shot consists of a torpedo with a high explosive charge at the bottom, a low explosive charge at the top and cement and chemicals in the space between.

Burns Tool Co.

The Burns special tubular temper screw, constructed of rugged tempered steel, was displayed by the Burns Tool Co. This screw is positive in action, capable of withstanding considerable hard usage and will stand up under long periods of wear.

Garford Motor Truck Co.

A special oil field type truck was displayed by the Garford Motor Truck Co. The body was removed to show the rear end and rugged frame construction. A winch and pneumatic tires were additional features of the truck.

Russell Manufacturing Co.

A solid woven cotton oil field drilling belt was the most prominent feature of the exhibit of the Russell Manufacturing Co. These belts are waterproof, according to the manufacturer, and are guaranteed to contain no plies.

Acme Boiler & Welding Co.

Brown rapid heating boilers, manufactured both for high pressure and heating purposes, were displayed by the Acme Boiler & Welding Co. of Tulsa. These boilers have a new feature in their construction which enables them to contain about one-fourth the ordinary amount of water. They are constructed so as to take advantage and stimulate the natural circulating tendency of heated water, causing a smaller body of water to be completely circulated and distributed over about eight times as much heating surface as in the ordinary boiler.

Regan Forge and Engineering Co.

A huge traveling block, nearly 7 feet high, containing four sheaves, was the most prominent article in the booth of the Regan Forge and Engineering Co. Each sheave operated on individual roller bearings and lubrication was secured in a positive manner by the use of the Alemite grease gun and connections.

Sivyer Steel Castings Co.

Truk-trak, by means of which a truck may be converted into a tractor was the display of the Sivyer Steel Casting Co. of Milwaukee, Wis. The Truk-trak is a caterpillar arrangement in the form of a belt of wide steel segments which clamp about the rear wheel and run around an idler wheel just in front giving better traction to the truck.

Wertzberger Derrick Co.

A rotary derrick 122½ feet high was constructed by the Wertzberger Derrick Co. Bradford steel bull wheels and calf wheel were displayed in it. Beaumont Iron Works Dreadnaught three-speed draw works and rotary were operated by an electric motor. Beaumont Iron Works Dreadnaught slush pump, straight shot type, crown block and traveling block also were displayed. Distribution of the Dreadnaught products is through the Frick-Reid Supply Co. Hughes tool joints were used and a Burton rotary bit was displayed. A Frick-Reid turbo-generator was displayed on the rotary table.

C. & G. Cooper Co.

The C. & G. Cooper Co. of Mt. Vernon, Ohio, displayed a new 160-horsepower twin cylinder direct connected four-cycle gas engine compressor unit.

National Supply Cos.

The exhibit of the National Supply Companies contained many new and improved features. The National No. 3 portable drilling rig, recommended for depths up to 4,000 feet, was displayed prominently. The rig was operated by a Superior gas drilling engine, 35 horsepower, two cycle, with splash lubrication on all bearings in the frame and a McCord force feed lubrication in the cylinder, and a new improved type C-13 clutch. Another Superior oil drilling engine, 30 horsepower, was belted to an Ingersoll-Rand vacuum pump. An Ingersoll-Rand Type 20 gasoline driven air compressor, self contained, also was shown. The new single cylinder Ajax steam drilling engine, 14 by 14 inch, withoutboard bearing, was one of the improved designs which attracted attention. A new four-cycle single cylinder Superior gas engine, 25 horsepower, with improved head and main bearings and with safety guards on all gears was another new design. One of the most interesting new features was found in the Superior four-cylinder 175-horsepower direct connected gas engine compressor, with Ingersoll-Rand compression cylinders, running under load. Splash lubrication was employed on all frame [illegible] and a McCord lubricator was used [illegible] oil the cylinders. The new Ideal U[illegible] versal rotary outfit, 20-24-inch type, [illegible] by the Union Tool Co., and distributed by the National Supply Co., was also [illegible] of the prominent operating features [illegible] this complete exhibit. An all steel [illegible] bearing rotary table of the make [illegible] break type was used, with Hyatt roller bearing equipped pinion shaft. Other features included the Ideal No. 12 [illegible] beam posts for the three-speed draw works, 12-inch brake band, two-cylinder Ajax steam engine, Ideal chains, Ideal 12x6¾x12 steam slush pump, and Ideal swivel, traveling block and crown block. A geared type of Ideal duplex slush pump also was shown. An 8-inch Wright spring hook and new type of hose connection was exhibited. One of the features of the outfit was the new Broderick 75-horsepower drilling boiler, equipped with Doreco low pressure gas burner. The derrick was furnished by the McGray-Baughman-Bearly Derrick Co. Roebling wire line was used. Among the many other features in the National's exhibit was the No. 6 geared single eccentric underpull pumping power belted to an Ideal electric motor reduction gear, which furnished the power. A National 12[illegible] heavy duty 18-foot bandwheel underpull pumping power with 18-inch throw upper and lower eccentrics, was another interesting item. A continuous forced flow oiling system was used fully lubricating both eccentrics and the bushings. A separate display showed the steps in the manufacture of Titan sucker rods and pull rods. Many other small auxiliary articles of equipment used in the production of oil were also displayed. The Union Tool Co. had an excellent display of drilling and fishing tools distributed through the National Supply Co. The Dayton couplings were also included in the National exhibit.

Columbian Rope Co.

Columbian Rope Co. is demonstrating what is claimed to be the first new thing in rope making since Noah was a boy. Rope looks so much alike that the manufacturer frequently can't identify his own make. Columbian Rope Co. by a patented process is weaving into all its high grade rope a thin strip of paper which is invisible unless the rope is unraveled and on which is printed in guarantee of the rope. It is also showing a torpedo line, a small rope extra strong for running shots in a well where if the rope broke prematurely there would be a disaster.

John A. Roebling's Sons Co.

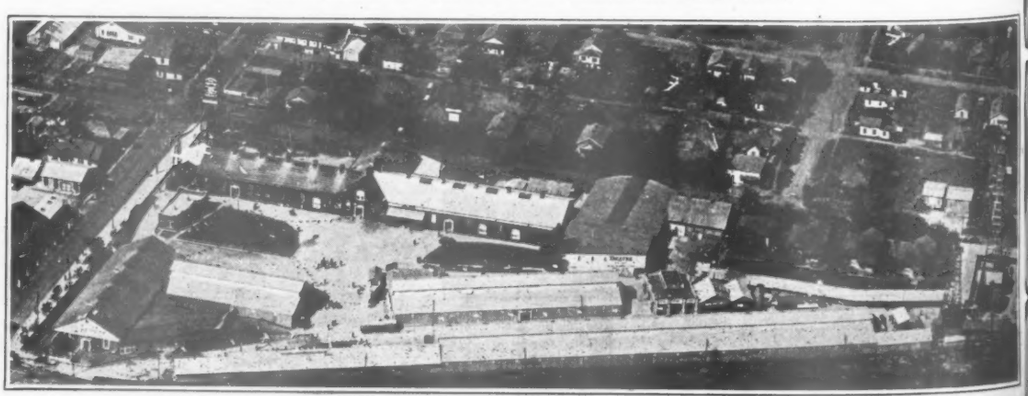
John A. Roebling's Sons Co. are featuring their wire rotary steel cable with the blue center. It is the latest thing. The film being shown on the grounds of rope making was made in the Roebling factory.

Oil Well Supply Co.

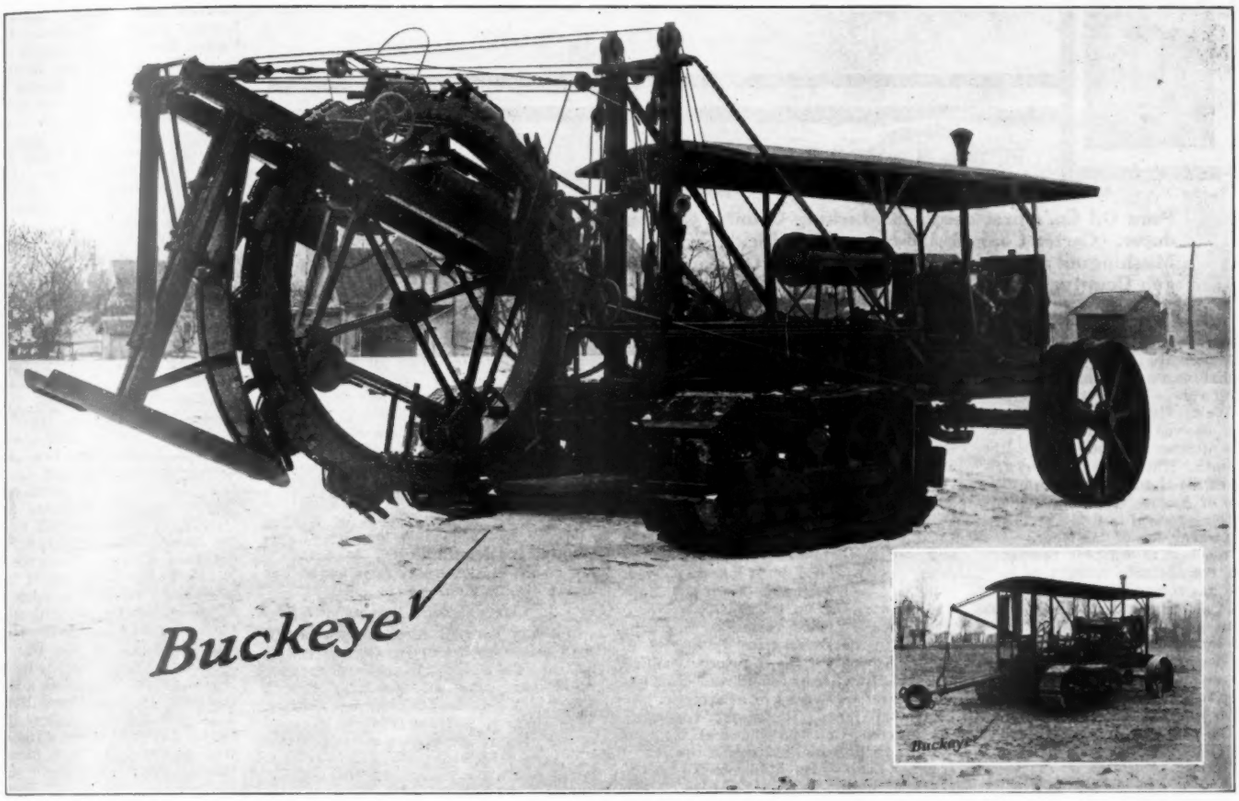
Outstanding in the exhibits of the Oil Well Supply Co. was the Imperial rotary drilling outfit housed in a National Turnbuckle derrick manufactured by Mahan, McCarty & Besse. The big

(Continued on Page 196-C)

AIRPLANE VIEW OF EXPOSITION GROUNDS



—Photo by Ed L. Miller, Tulsa



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Buckeye

Pennsylvania-West Virginia

By D. S. Wakenight

Pure Oil Co.'s first deep test, Licking County, Ohio, showing for good producer. Carter Co. gets 150-bbl. well in Licking County; Pure Oil, 75 bbls. in Muskingum and 40 bbls. in Morgan. Sun Oil Co. has 40-bbl. producer in Morgan County, also. Goose Creek Oil Co. gets 75-bbl. well in West Virginia.

PITTSBURGH, Pa., Oct. 6. — Producers and operators in the eastern fields are somewhat encouraged and taking a more hopeful view. The southwest Pennsylvania, West Virginia and southeast Ohio fields, showed a decline in operations in September compared with the previous month. There was also less new production at the close of September than at the close of August. It is quite likely there will be no revival in field operations during the remainder of the year. The market is too low to warrant the starting of any considerable amount of new work. The gas companies are showing a good deal of activity, but this is common at this time of the year when all are anxious to increase their supply to meet the winter demand. Nearly all the wildcat work under way and starting is backed by the gas companies and some are going far afield in the hope of finding new fields to take the place of the old. Fully three-fourths of the work under way in West Virginia is located in gas territory. In some of the lower counties the outlook is encouraging.

Some Good Completions

The most important discovery in the eastern fields during the week was the drilling in of another Trenton Rock producer in Licking County, Ohio, 2 miles southwest of Newark. It is the Pure Oil Co.'s first deep test, on the Ilena Smith farm. The pay was reached at a total depth of 4,358 feet and shortly after it was tapped the 10-inch hole filled up 1,200 feet with fluid, indicating a good producer. However, the caliber of the well as a producer cannot be determined until after it has been shot. Located 2,300 feet southeast of the Pure Oil Co.'s producer, W. W. & A. T. Wehrle are reported to have a duster in the Trenton Rock at a test on the Joshua Zartman farm. Their test on their own farm, completed several months ago, is the discovery well and reported producing between 30 and 40 bbls. a day. There has been considerable mystery surrounding this well, as the owners and the men working at the well decline to give out any information.

The next well due to get the Trenton Rock pay is the Ohio Fuel Gas Co.'s test on the Licking County Fair Grounds. It is drilling below 4,200 feet and should get the pay next week. Aside from the three wells named no others in Licking County have been drilled to the Trenton.

Producer in Madison Township

In Lot 14, Madison Township, Licking County, the Carter Oil Co. completed and shot a second test on the Jacob Vanderbark farm and secured a Clinton sand producer good for 150 bbls. a day. In the northwest quarter of Section 3, Jackson Township, Muskingum County, the Pure Oil Co.'s second test on the Jacob A. Ashcraft farm flowed 75 bbls. the first 24 hours after it was completed and shot in the Clinton sand. The shallow sand territory in York Township, Morgan County, maintained its record for good producers when the Pure Oil Co. completed and shot in the Berea grit its No. 3 on the William Epply farm. It is north of No. 1 and good for 40 bbls. a day. There is quite a good deal of new work under way and starting in this development.

In Newport Township, Washington County, Brown Brothers and Valentine Brothers completed a test on the Martie Matheny farm, a light pumper in the Maxon sand. In Lawrence Township, the First National Bank of Marietta has started to drill another test on the Bergn Oil Co.'s lease. In Section 31, Enoch Township, Noble County, J. O Miller & Co. have a dry hole in the Macksburg 500-foot sand at No. 9 on the Otis H. Dillehay farm. In Newton Township Licking County, Rugg & Early completed and shot in the Berea grit a test on the Ann Smith farm. It is a 3-bbl. pumper. In Washington Township, Monroe County, the Carter Oil Co.'s No. 5 on the W. S. English farm is a very light pumper in the Berea grit. In Section 5, Bethel Township, the Newhart Drilling Co. has a light show of oil and considerable gas in the Berea grit at a test on the E. Gutheil farm. In Liberty Township, Washington County, James Hadley & Co. are drilling another test on the James Hadley farm. In Madison Township, Licking County, W. W. & A. T. Wehrle are drilling on the A. D. Fetty and T. L. Stevens farms.

Some Good Producers

In rounding out the week of development work the southeastern Ohio fields had several good completions. The best is the Carter Oil Co.'s second test on the John Somerville farm, in Section 25, Perry Township, Licking County. The well flowed and swabbed 103 bbls. the first 24 hours after shot. In Section 17, Prairie Township, Holmes County, the Pure Oil Co. has drilled in a test on the H. Q. Marquis farm and showing for a 24 or 30-bbl. producer in the Clinton sand.

In Section 29, York Township, Morgan County, the Sun Oil Co. completed and shot in the Berea grit No. 4 on the Grant Bailey farm. It is good for 40 bbls. a day, or about the average size of the late completions in this district. In Section 16, Madison Township, Licking County, Spindler & Donaldson have a 4-bbl. pumper in the Berea grit at No. 8 on C. A. Bounds farm. In Section 10, Hopewell Township, Muskingum County, the Mideat Oil Co.'s test on the M. J. Wildman farm is a gasser in the Big Lime formation good for 800,000 feet a day.

West Virginia

With two exceptions all completions in the West Virginia fields came in light pumpers, gassers or dry holes. The two exceptions are the Goose Creek Oil Co.'s test on the James Newbrough farm, in Grant district, Ritchie County. The well produced 75 bbls. the first 24 hours after drilled into the Big Injun sand. On Georges run, McElroy district, Tyler County, the Hope Construction & Refining Co. got a 20-bbl. producer when it drilled a test on the S. T. Merritt farm into the Maxon sand. This is one-half mile north of the South Penn Oil Co.'s production on the Elizabeth Underwood farm.

In the list of completions, gassers were the feature. On Big Sandy River, Big Sandy district, Kanawha County, the United Fuel Gas Co.'s test on the S. P. Young farm is a gasser in the Big Injun sand. This company's test on the A. J. Hinesman farm is a gasser in the same formation. In Hamilton district, Nicholas County, the Hamilton Oil & Gas Co. completed its No. 6 and has a gasser good for 1,000,000 feet in the Maxon sand. All previous completions in the district got their gas in the Big Injun sand. In the Big Run Pool, Williams district, Wood County, the Hoaglan Oil Co. drilled a test on the C. W. Lawer farm into the first Cow Run showing for a 4-bbl. pumper. In the same district, the Henderson Oil Co.'s No. 5 on the Strain heirs' farm is good for 5 bbls. a day. In Courthouse district, Lewis County, the Mud Lick Oil & Gas Co.'s test on the Maude Gillan farm is a gasser in the Gantz sand.

Bayard Sand Pumper

In Clay district, Monongalia County, the Carnegie Natural Gas Co. has drilled its test on the N. A. Moore farm through the Bayard sand and good for 4 or 5 bbls. a day. In Burning Springs district, Wirt County, Roberts Brothers completed and shot in the Maxon sand their No. 135 on the Rathbone Oil Tract, a 5-bbl. pumper. In Gray district, Roane County, the United Fuel Gas Co.'s tests on the R. O. Samples and W. J. Justice farms are gassers in the Big Injun sand. In Sheridan district, Calhoun County, the Hope Natural Gas Co. has a Big Injun sand gasser at a test on the R. G. Lynn farm. The Chartiers Oil Co. has a gasser in the salt sand at a second test on the Baptist Missionary farm, in Center district, Gilmer County. In Otter district, Braxton County, the West Virginia Central Gas Co. has a gasser in the Big Injun sand on the C. F. Engle farm. In Birch district, the Pittsburg & West Virginia Gas Co.'s test on the P. H. Vanscoy farm is a gasser in the Gordon sand. In Barboursville district, Cabell County, the Aetna Oil & Gas Co. got a gasser in the Big Injun sand at its test on the Fred Carter farm. In Carroll district, Lincoln County, the Foote Oil & Gas Co.'s test on the Guy Ray farm is gasser in the Big Injun sand. In Church district, Wetzel County, the Manufacturers Light & Heat Co. drilled down to the fifth sand its old No. 3 on the J. & R. Ullom farm. It is a gasser in the lower sand.

Gassers in Ritchie County

Ritchie County is completing many gassers. In Clay district, the Premier Glass Co.'s No. 4 on the Haymond heirs' farm is a gasser in the Big Injun sand. No. 3 on this farm, completed some time ago, came on a good oil producer. In the same district, Thomas Lambert & Co. have a gasser in the same formation at a test on the Ida M. Stull farm. In Grant district, Hubert McGinnis has a 3-bbl. pumper in the Keener sand at a test on the P. M. McGinnis farm. In Walker district, Wood County, Bowser & Ekas drilled to the Berea grit an old well on the Seldon Rice farm, good for 5 bbls. a day. In Sherman district, Calhoun County, Parks & Daily have a gasser in the salt sand at a test on the Clara Louden farm. In Simpson district, Harrison County, the Aizpurin Oil Co.'s second test on the Bertha Maxwell farm is dry in all sands. The Hope Natural Gas Co.'s test on the J. W. Goff farm in Clay district, Ritchie County is a gasser in the Big Injun sand. In Union district, Louden & Co. have a gasser in the Big Injun sand at No. 4 on the J. O. Nay farm.

On Charleys Creek, Grant district, Cabell County, the Aetna Oil & Gas Co. is drilling a test on the C. O. Nimm farm. On the same stream, the Midway City Gas Co. has started to drill on the Thomas Vance farm. On Lens Creek, Louden district, Kanawha County, the United Fuel Gas Co. started to drill tests on the Fannie Boyd and Robson-Prichard farms. In the same district, the Owens Bottle & Machine Co. has moved in drilling machines and started to drill on the R. C. Quarries farm and the Green Kanawha Petroleum, Land & Coal Co.'s tract. On Rowells run, Lee district, Calhoun County, M. F. Crowley has a rig up on the J. W. Holbert farm. On Hardman fork of the same stream the Hope Natural Gas Co. has the rig completed for a test on the Albert Bell farm. On Red Lick run, New Milton district, Doddridge County, Trainer & Travis are rigging up to drill deeper its test on the Francis Douglass farm, hoping to find a pay at the same depth the Hope Construction & Refining Co. got the oil in its No. 5 on the W. H. Douglass farm. On Little Paw-Paw Creek, Paw-Paw district, Marion County, the Owens Bottle & Machine Co. is drilling on the Enz Michael farm. On Leaf Brak Creek, Center district, Calhoun County, Henry Eddy has a rig completed on the A. N. Bailey farm. On Bell run, Sheridan district, the Great Elk Oil Co. has a rig up on the Baker-Baughman farm. In Jefferson district, Pleasants County, R. Nolan & Co. have moved in a drilling machine to a second location on the S. P. Allen farm. On Fink Creek, Troy district, Gilmer County, the Hope Gas Co. has a rig up on the Charles Osborne farm. In Union district, Ritchie County, the Carnegie Natural Gas Co. has a rig completed on the Creed Ritchard farm. In Troy district, Gilmer County, the Carter Oil Co. has rig material at a location on the John Hall farm. In Glenville district, the Star Oil & Gas Co. is starting on the A. A. Post farm. In Courthouse district, Lewis County, the Federal Oil & Gas Co. has started to drill a second test on the J. F. Robbaugh farm. R. F. Monroe is rigging up at a test on the A. M. Rowand farm in Mannington district, Marion County. Near Terra Alta, Portland district, Preston County, the Hope Natural Gas Co. is drilling through the cement at its deep test on the Joseph Gordon farm.

New Gas Field Discovered

What may be regarded as a strictly new and somewhat remote gas field has been discovered by the Hamilton Oil & Gas Co., composed of prominent Eastern capitalists, among others members of the Dupont family of Wilmington, Del., are interested. It has made important gas discoveries in Hamilton district, Nicholas County in a compact body and has completed and shut in three gas wells in Hamilton district. The gas is found in the Big Injun sand and the wells are said to average more than 1,000,000 feet a day. At the present time the Hamilton Oil & Gas Co. is drilling three more wells in Hamilton district and has let the contract for the drilling of six more wells in the near future.

The Big Injun sand, the producing formation, is reached at a depth of from 1,800 to to 2,200 feet and none of the wells completed have been drilled below that level. All of the Ponco sandstone series are found in this district and may be productive of oil or gas. The Berea grit is reached at a depth of 300 feet below the Big Injun sand, or at about the same depth the Berea grit is found in other districts in West Virginia, except in Boone and Kanawha counties, where it is found at approximately 2,800 feet. The Warren, Speechley and Benson sands are also present at a depth of from 3,500 to 4,800 feet.

The Ohio Supply Co. and the United Fuel Gas Co. are reported to have leased a large acreage to the north and west of the Hamilton Oil & Gas Co.'s holdings. The West Virginia State Geological Survey in its late reports recommended a test for gas in this district and the drill seems to have vindicated the opinion of the survey.

At the present time there is no pipe line within many miles of the develop-

(Continued on Page 192)

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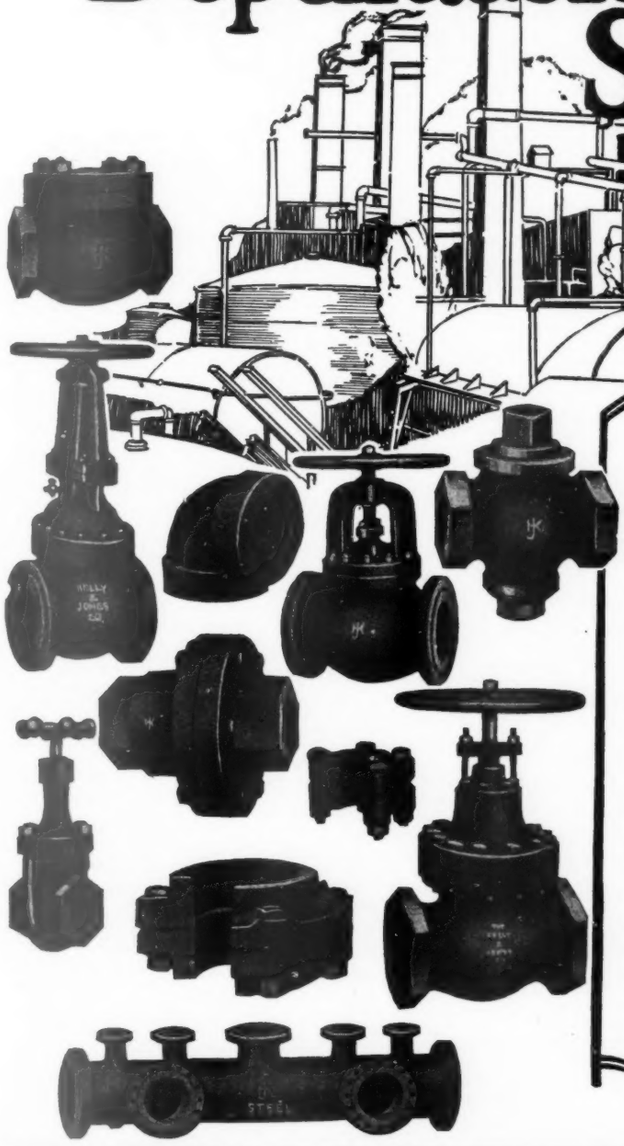

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Fields of the Central West

By Whit

Young & Geselchen get best well of week in old Lima Field, 25 bbls. flush, in Auglaize County. Paulding Field proves disappointing. V. S. Welch has 20-bbl. pumper in Sullivan County, Indiana; Allendale Field, Wabash County, Illinois, most promising now with finding of oil in Bridgeport sand.

FINDLAY, Ohio, Oct. 6.—The important feature of the Central West Field for the week was the sale by the Paragon Refining Co., of its producing wells and lease in Wood, Sandusky, Seneca and Lucas Counties in the Lima Field of northwestern Ohio. This deal goes down as the largest in the history of the Trenton Rock Field in the number of wells, there being a total of 700, with approximately 100 power plants, two pump stations and two farms in fee. This deal was made by Mack P. Colt, of Lima, vice-president of the National Supply Co., for his company. Many of the wells are old-time producers and the production is small, as the 700 wells are credited with a monthly production of about 3,500 bbls. Those that are still commercial producers will be kept on the powers, while the others will be dismantled and the material will go over most every field east of the Rocky Mountains, as there is a big demand for second-hand material that is in usuable condition.

New completions were few during the week, none above the average in any of the several fields.

Best Lima Completion

The best completion reported from the old Lima Field was Young & Geselchen's No. 3 on the J. M. Myers, Section 34, Moulton Township, Auglaize County, with a flush of 25 bbls. No. 1 is now drilling for the same parties on the Alvin Myers, same section, E. E. White is drilling No. 1 G. R. Julian, and J. R. Kelly is drilling No. 2 on a part of the same Julian farm, Section 34. In Logan Township, same county, E. L. Kirk and others are drilling a second test on the Logan farm, Section 10, and in Noble Township, Charles Mertz is drilling No. 7 on the Francis J. Robey, Section 27.

In Perrysburg Township, Wood County, J. P. Birkin struck a 15-bbl. pumper at No. 3 on his own farm, Section 34. Top of Trenton was found at 1,223 feet and drilled 30 feet in to a total depth of 1,253 feet, which indicates the well is located on an anticline, being somewhat higher or nearer the surface than most wells in that part of the county. In the same township, W. F. Johnson has a rig in for No. 7 on the D. Lahy, Section 34, and Malvern Good is drilling No. 3 on the Melvin Speck, Section 32.

In Perry Township, Wood County, and northwest of Fostoria, Dennis Brothers are drilling No. 3 on the C. J. Bressler, Section 6. In Middleton Township, near Haskins, R. R. Lynch is drilling a well on the Henry Apel farm, Section 34, and Fred H. Speck has a rig in for No. 4 on his own farm, Section 17. In Liberty Township, Schedt, Hamann & Huston's No. 1 on the C. T. Lee farm, Section 4, is credited with 1 bbl. In the same section and township, Hulse & Koontz are drilling No. 1 D. W. Livers farm and W. S. Raydure is doing the same at his No. 1 on the Marion S. Wiseley farm. The Vanlue Oil Co. abandoned No. 1 G. W. Chaney, Section 8, and the Ohio Oil Co. No. 21 on the D. J. Corey, Section 15.

In Amanda Township, Allen County, W. L. Parmenter has pulled out his old No. 3 on the Sam Keith, Section 31. In Spencer Township, W. W. Rooks is drilling a test on the Anna Youngpeter farm, Section 23, and the New Gas Co. has a rig in for a test on the Newton Fyn farm, Section 13. In Bath Township, Carmon, Botkins and others are drilling No. 2 J. L. Solomon, Section 10, and C. A. Peavy and others are working at No. 7 E. W. Prewant, Section 1.

Mercer County

In Hopewell Township, Mercer County, E. A. Kuhns and others' No. 5 on the southeast corner of the E. Siler farm, Section 1, pumped 15 bbls. first head. A. J. Metzger's No. 1, 250 feet from the south line and 1,100 feet from the east line of the S. Fetters farm, in the southeast quarter of Section 20, pumped but 2 bbls. from the Trenton Rock. The Home Banking & Trust Co. is drilling No. 3 on the George F. Hellsworth, Section 21.

In Liberty Township, Mercer County, O. C. Fink's No. 1, 990 feet from the north line and 330 feet from the west line of the Peter Alt farm, in the southeast quarter of Section 8, pumped 20 bbls. the first 24 hours. In Granville Township, Crouse and others are drilling a test on the W. Post farm, Section 25. In Union Township, the Watson Oil Co. abandoned No. 6 S. E. Miller, Section 33. In Gibson Township, E. G. & James Henderson are drilling a second well on the Joseph Schmidtz, Section 36, and the Central West Oil & Gas Co. is drilling No. 4 J. P. Schmidtz, same section. In Butler Township, Deffenbaugh and others have started No. 4 A. Able, Section 31. O. J. McGuiggan and others are drilling No. 1 J. Haubert, same section, and Courtney Combs is at work at his No. 2 C. Stuckenburg, Section 20.

Work is picking up some in parts of Van Wert County, and the wells completed last week in Harrison and Pleasants Townships of that county, will go a long way to bring about a new development with the advance in the price of crude. In Jennings Township, same County, the Stanley Oil Co. abandoned No. 1 Amos Burnett, Section 28. In Ridge Township, the Senate Oil Co. started No. 4 on the E. H. Leathers, Section 14.

The Eilerman Oil Co. has started work at its No. 4 on the Anna Eilerman farm, Section 26, Cynthian Township, Shelby County, while O. J. McGuiggan and others are drilling a wildcat test on the H. Pauls, Section 3, Laramie Township, same county.

Paulding Quiet

Paulding County is quieting down to a large extent as the operators that looked for big things in the county failed to find them. Some wells in the Payne Field, in the western portion of the county, started at a nice clip, but the oil is a problem to handle during the colder weather. This is the third attempt to open a commercial field in the county, but if something better is not found shortly, investors there will have their accounts on the wrong side of the ledger, especially those who purchase leases at fancy prices. The only new well reported from the Payne Field is Robinson & Madell's well on the William Wood farm, Section 17, Benton Township, which is a light gasser.

Operators state that the wells found recently around McGuffey and other points in Hardin County are showing very good staying qualities, owing to the depth in which the wells are found, something like 1,450 feet. In McDonell Township, Schmidt & Holmes are drilling No. 1 J. T. Bowdle farm, and the Roundhead Oil & Gas Co. is drilling No. 1 Charles Steverton farm. In Marion Township, the McGuffey Oil & Gas Co. is drilling No. 1 J. Hinebaugh, Section 11, and in Roundhead Township, Whipple, Ulrich and others are drilling No. 1 John Shields farm.

Central Ohio

In the Central Ohio Field, during the week a total of 9 completed wells were reported, none oil producers, there being 8 gas wells and 1 dry hole. Eight new wells were started drilling and 5 new locations and rigs building for the same period.

The best gas completion was made by the Logan Gas Co. in No. 5 on the Arthur Cole 83 acres, Section 4, Carthage Township, Athens County. Same company has started a test on the S. J. Lowery 144 acres, Section 1, Waterloo Township, same county, and in Rome Township, Stephens & Yowman are drilling a second test on the V. S. Parker 250 acres, Section 35.

In Hanover Township, Ashland County, the Logan Gas Co.'s No. 3 Fred Feichter farm, Section 22, was a light gas well, while its No. 1 on the Howard Bockman, Section 16, was a fairly nice gas producer. In Vermillion Township, same county, W. E. Hawk and others are drilling No. 1 on the Clara Endinger 153 acres, Section 26. In Orange Township, same county, the Logan Gas Co. brought in a light gas well at a test on the Jacob Singer, Section 5, and started drilling its test on the John J. Brown 65 acres, Section 6. In Greene Township, same county, the Ohio Fuel Gas Co. is drilling a test on the Madison Teeters 80 acres, Section 22.

In Harrisville Township, Medina County, the Ohio Fuel Gas Co. has a better than average gas well at its test on the Angie E. Daniels, in Lot 80. In Guilford Township, the Central Ohio Gas Co. is drilling a test on the John A. and Mark Winkle 158 acres, Section 5, and in Brunswick Township, the same company is drilling a test on the D. T. Tillotson, Section 4.

In Grafton Township, Lorain County, the Logan Gas Co. drilled in an average gas well at No. 1 on the Fred Klinest, Lot 66, and made a location for a second test on the same 84-acre farm, in Lot 55.

Wayne County

In Cannan Township, Wayne County, Butler Brothers have a nice gas well at a second test on the Daniel Wiles, Section 21, and in Wayne Township, the Ohio Fuel Gas Co. drilled a dry hole at a second test on the Charles Pressler, Section 5.

The Central Ohio Gas Co. has made locations for Nos. 1 and 2 on the W. A. Smith 50 acres, Section 4, Monroe Township, Holmes County.

In Newcastle Township, Coshocton County, the Logan Gas Co. has a light gas well at its No. 2 on the William Ringwalt 252 acres, Section 15.

In Franklin Township, Jackson County, the Ohio Fuel Supply Co. made a location for a test on the Stewart Cherrington 202 acres, Section 35, and for No. 1 on the Matilda Mercer 102 acres, Section 13.

In Richfield Township, Summitt County, the East Ohio Gas Co. is drilling a second test on the E. M. Merton 81 acres, Section 19.

In Lick Township, Jackson County, the Ohio Fuel Supply Co. has a rig building for a second test on the Mary B. Emmons 40 acres, Section 36.

In Washington Township, Hocking County, the Logan Gas Co. is drilling No. 2 on the Ed Lockard farm, Section 11, and drilled a dry hole in a test on the Minnie Allen 115-acre farm, Section 12, Benton Township, same county.

Indiana

Only one completion was reported from the Indiana field during the week and that was in the western portion of the State, in Turman Township, Sullivan County, where V. S. Welch's No. 7, 20 feet from the north line and 550 from the west line of the Nancy A. Denney farm, Section 14, pumped 20 bbls. the first 24 hours from a depth of 823 feet. In Hamilton Township, Fred Bays is drilling his No. 5 F. C. Springer, Section 7, and in Harrison Township, Knox County, P. C. Andrews and others are shut down at their test on the Lulu Proctor, Section 28.

In Logan Township, Pike County, in the Oakland City district, the Good Luck Oil Co. has a rig in for No. 4 on the Enos Loveless, Section 23 and the Noble-Bolyard Oil Co. has a rig up for No. 9 on the Dave Huey, Section 27. In Lockhart Township, in the south portion of the same county, J. H. Sullivan is drilling a wildcat on the Otto Bowermeister farm, Section 12.

Manfield and others are drilling a test on the R. Drake, Section 30, Hamilton Township, Sullivan County.

The territory around Balbec, in Penn Township, Jay County, is attracting more than passing attention since the American Engineering Co. drilled in its 40-bbl. flush well in a wildcat on the C. C. Harris farm, Section 16. This well, with the one the same company brought in for 5 bbls. on the Carl Davenport, Section, 22 same township, makes it look as though a new and interesting area is about to be opened up in this county.

Illinois

The only spot of real interest in any section of Illinois at this time is around Allendale, in Wabash Township, Wabash County, and north of Mt. Carmel. In this county the territory lying southwest, east, south and southeast of Allendale is looked upon as the cream of the field. Dry holes are found close to extraordinary good producers, and such has been the case since the original well on the Adam Biehl farm was brought in some years ago. Since that early day other very interesting pools have been found, such as the Wright farm pool, which caused the last excitement and since then producing wells have spread over a wide area of territory that had been considered as worthless.

One of the latest features in the Allendale Field is the finding of oil in the Bridgeport sand and taking that sand in connection with the Beal and Jordan sands, known to be highly productive, and with such wells as that just reported completed by Phipps, Blosser and others on the Winters farm, near the center of Section 24, and in the southwest quarter of the section, will cause intense excitement. This well is showing for as good as any completion yet made in the county, and found the sand at 1,442 feet and the oil at 30 feet in. The hole filled to the top within two hours after the pay was penetrated. The well is 650 feet from the north line and 500 from the east and west lines, the farm containing 30 acres. Four wells are drilling down the center of the farm which is nearly half a mile long running north and south. The Winters well is about 800 feet west and a little north of the same parties well on the Armstrong farm that was drilled in some weeks ago and will make quite a stir in that new section of the Allendale Field.

Find Real Oil Well

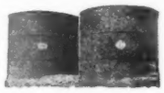
Wireback & Ballard have a real oil well in the Bridgeport sand on the Clara Adams 60 acres, in the northeast quarter of Section 23, Wabash Township and just across a 40-acre tract to the northwest from the new Winters well. This well was drilled in a few days ago but as the owners were not looking for anything in the Bridgeport sand they ran into it

(Continued on Page 192)

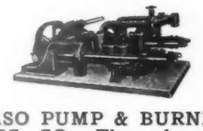
Tulsa Has An Advertising Agency

OUR TULSA ACCOUNTS

(mentioned with permission)



MALONEY TANK MFG. CO. Makers of the Original Bolted Steel Tank. The Oil and Gas Journal's oldest advertiser.



GASO PUMP & BURNER MFG. CO. The only concern specializing *strictly* in the manufacture of Oil Industry Pumps.

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THE BRADEN COMPANY. This company's E-Z-BILT Steel Houses are now being used from end to end of the Industry.

NATIONAL TURNBUCKLE DERRICK CO. Makers of a wonderfully sturdy, reliable, and popular turnbuckle derrick.

The Rogers-Gano Advertising Agency, Inc., are pleased to announce the re-opening of our Tulsa office, at 407 World Building.

A re-organization of our company has taken place the past summer, and during this rather difficult period the Tulsa office was temporarily closed.

We have, however, been "sold" throughout, and with reason, on Tulsa as a field for a modern, progressive advertising agency, and it was the full intention to re-open our Tulsa office this fall and to maintain at this point permanently an office which will be *more than a branch office* for the reason that it will be equipped to render complete service on any account without assistance from our other offices. Our Tulsa office will be a *local* concern, making all possible purchases of art work, engravings and supplies in Tulsa from Tulsans.

Mr. R. C. Gano will be stationed at Tulsa and in charge of this office until further notice.

Agencies have located at Tulsa in the past, but for one reason or another have failed to become permanently established here. The Rogers-Gano Advertising Agency is now here to STAY. We propose, through giving an exceptional degree of service which will insure success and permanence, to guard jealously through the years the distinction already achieved of being "Tulsa's Oldest Advertising Agency."

"Assistance in Representing Good Products to the Public Exactly As They Are"

The Rogers-Gano Advertising Agency are the country's leading specialists in Oil Industry Advertising, handling many other of the Industry's leading accounts in addition to those above named.

Rogers-Gano Advertising Agency, Inc.

407 World Bldg., Tulsa, Okla.

CHICAGO HOUSTON DENVER

Kentucky—Tennessee

By Vern T. Whitney

Fewer wells and less production in field during past week. Wildcatting proves unproductive, six being failures, three in Monroe County. Reduction in work. Best well in Western Kentucky was T. A. Sheridan's No. 8, Davenport Pool, estimated good for 25 bbls. Activity in Owensboro Field.

BOWLING GREEN, Ky., Oct. 6.—Wildcatting in Kentucky has not been productive recently, according to reports coming in during the past week. Six out and out wildcats were completed and reported failures, while several attempts to extend the productive areas of known pools have proved disappointing.

The former include three attempts in Monroe County, one on the J. B. Chappell farm, 7 miles southeast of Tompkinsville at Otia Landing, one on the Vance farm, 6 miles northeast of Tompkinsville on a prong of Little Sulphur Creek, and one on the Ferguson tract, 3 miles south of Tompkinsville, near Flippin. These wells were all abandoned in the formations where the shallow sands were expected. Between 20 and 30 tests have now been drilled in Monroe County, several to the deeper formations, and all have proved unproductive except in the Kettle Creek district in the southeastern corner of the county. When interest was first created in Monroe County through the discovery of wells in the Kettle Creek district, geologists examined the field thoroughly and the consensus of opinion was that production would be limited to a small area in the southeastern part of the county.

These opinions were reported in The Oil and Gas Journal at the time, given then for what they were worth, but exploration has shown them so far to be correct, for the county has been pretty thoroughly tested.

Edmonson County Test

A test was drilled in Edmonson County by the JCS Oil Corp. on the W. F. Butram, 3½ miles northwest of Smith's Grove, near the Rocky Hill Pool, to 990 feet. This test was located on a promising structure and carried through the deep sand, but proved barren. Edmonson County, however, lies in a direct extension of the productive pools in Warren County and offers a promising field for the wildcatter.

On Little Brush Creek, in the northwestern corner of Taylor County, where the Marion, Larue and Hart County lines meet the boundary of Taylor, the Wood Oil Co. got a dry hole in the deep pay below the shale. This company recently completed a dry test on Otter Creek in Larue County, and it is now drilling a test on the Wallen farm in Green County.

In Central Metcalf County, Portland parties got a dry one at around 500 feet. The Scott Drake well on the Lambert farm in the Gaddie district, reported last week, is estimated at 50 bbls., and may reopen this old producing section.

Reduction in Work

A reduction in work is shown in completions reported for the week. There were fewer wells finished and less production, but, considering the low price of crude and the attitude of the operator toward commencing new work, it shows considerable activity throughout the State. However, an examination of reports on drilling for the past three months leads to the conclusion that the wells now being completed show the winding up of much work that was started the first of the year, and that from now on there will be comparatively few completions reported and very little new work commenced until there is a decided change for the better in the oil market. A summary of the week's completions shows the following:

County—	Comp.	Wells	Prod. Prod.	Dry	Gas
Barren	6	4	25	2	0
Warren	5	3	39	2	0
Allen	4	2	10	2	0
Johnson-Magoffin	4	4	18	0	0
Lee	3	3	25	0	0
Monroe	3	0	0	3	0
Lawrence-Johnson	2	2	7	0	0
Elliott	1	0	0	1	0
Edmonson	1	0	0	1	0
Taylor	1	0	0	1	0
Metcalf	1	0	0	1	0
Total	31	18	124	13	0
Last week	33	22	281	10	1
Difference	2	4	157	3	1

Western Division

The best well of the week in Western Kentucky was completed by T. A. Sheridan in his No. 8 on the G. Davenport 1,000 acres in the Davenport Pool west of Bowling Green in Warren County. It started off making 10 bbls. per hour at a total depth of 501½ feet and is estimated conservatively at 25 bbls. This well is located in the center of this large lease and about 1 mile to the northeast of the several dry holes on the same property. No. 7 on the same farm was reported dry at approximately 900 feet.

In the Hardcastle area, in eastern Warren County, George Stewart, well-known drilling contractor and operator, finished his initial well on the Cox farm which he recently purchased from the Atlantic Oil Producing Co. This completion, No. 19 on the farm, made 12 bbls. on test at a total depth of 497 feet. Shale was found from 425 to 483 feet and the sand from 489 to 496 feet. Casing was set at 152 feet. It was 400 feet south of No. 1 and 500 feet west of No. 10.

In the Rockfield area southwest of Bowling Green, A. Allen and others' made a 2-bbl. pumper out of No. 3 Kuykendall at 485 feet.

D. T. Bolling's No. 1 Smith Brothers, drilled to offset the Potter farm in the McLemore-Gillespie-Price Pool, proved a disappointment at 1,050 feet, 105 feet below the shale.

The only new well to be started during the past week was the Wood Oil Co.'s No. 14 Jim Isabel. This property is in the Waller-Runner Pool northeast of Bowling Green. It is reported that D. T. Bolling has purchased the V. McDonald farm, which adjoins Roy Hogan's L. C. Dillard, and will immediately move in a rig and start his initial test. This lease is in the Richpond district.

Allen County

The Keyes Oil Corp., composed of Charles H. Keyes and Wellsville, N. Y., parties, has taken over the famous Mitchell 27 acres in the No-Name district of southwestern Allen County and the Dan Stark 100 acres in the Gainesville Pool.

C. H. Andrus and associates, of Chicago, just finished a duster on the Pepper farm, adjoining the Walker lease to the east. It was drilled to a depth of 328 feet. No. 2 Pepper was spudding.

Ross Work got a dry hole in No. 1 R. S. Welsh at Chaple Hill, south of the Trammel Creek Pool. No. 2 was being rigged up.

In the Gainesville Pool, north of Scottsville, C. K. Boller got a 5-bbl. pumper in No. 1 J. E. Meredith, after shooting the sand at 442 feet with 30 quarts of nitro. In the same vicinity Gardner and others' No. 7 Stovall is making 5 bbls. naturally at around 432 feet.

Barren County Wells

In an effort to extend the Emery-Moore Pool, 3 miles west of Glasgow, in Barren County, to the south Lewis J. Emery, Jr., and Sons got a dry hole in No. 1 Saunders at 504 feet, 215 feet below the shale. The same parties got a duster on the Davidson tract, one-half mile west of the Saunders at 400 feet, 220 feet below the shale. No. 3 Barton is nearing the top of the pay at 400 feet. This lease adjoins the Saunders to the north and is northwest of the Davidson.

Four completions, all producers, is the record made during the week in the Emery-Moore Pool. The best was that of the Houchins Leasehold Co. in No. 8 I. N. Mansfield, which is good for 11 bbls. at 530 feet. The same company's No. 9 Mansfield made 5 bbls. at 563 feet. Shale was from 298 to 347 feet and the sand from 541 to 548 feet, where it was treated to a 40-quart shot. The Carter Oil Co. completed a 4-bbl. pumper in No. 10 Wininger at 533 feet. Shale was found from 275 to 325 feet and the cap rock was found from 514 to 521 feet. The sand at from 521 to 530 feet was shot 30 quarts. On the Taylor farm, T. L. Gorby's No. 2 Taylor made 5 bbls. at 431 feet.

Drilling Activities

Gillespie & Scott's No. 6 Scott, in the Emery-Moore Pool, was drilling at 311 feet. Shale was topped at 271 feet; Zeigler Brothers and others were spudding No. 1 Bradford heirs at 60 feet; Esslinger Oil Co.'s No. 1 Mack Mansfield was drilling in the sand; Carter Oil Co.'s No. 11 Wininger was down 200 feet and drilling; same concern's No. 2 Goodwin was shut down; JCS Oil Corp.'s No. 1 Guy Jackson was testing at from 400 to 456 feet; No. 1 H. Jones, same corporation, was testing out at 435 feet; Star Oil Co.'s Nos. 10 and 11 Ritchie were spudding as was No. 3 Free of the same concern; Bishop & Son's No. 2 Bishop was drilling at 100 feet; Rice & George's No. 1 Mrs. Jackson, adjoining the Bishop, was broke down at 45 feet.

Owensboro News

A survey of the Owensboro Field shows there is quite a bit of activity even in the face of the depressed market. In the Herbert school house district, about 3 miles south of Pellville, the Panther Creek Oil Co.'s No. 9 R. M. Miller was waiting to be shot at 750 feet; Kentucky Oil Co.'s No. 2 S. V. Flowers was being tested out in the Barlow sand at 728 feet; C. E. Daugherty's No. 1 F. V. Miller 61 acres, north of the Milligan well, was spudding; Panther Creek Oil Co. was spudding in No. 10 R. M. Miller, 400 feet south of No. 9.

In the Hurricane Pool, 4½ miles south of Pellville, C. E. Daugherty's No. 1 G. M. Burdette was being cleaned out after a shot in the Barlow sand; I. N. Harkloss' No. 5 Casey is a location; C. A. Leeper was cleaning out No. 4 Lone Helm after it was shot in the Barlow sand; I. N. Harkless was moving a rig to drill No. 2 Dick Spurrier to offset No. 4 Casey to the west; C. A. Leeper's No. 5 Lone Helm, 350 feet north of Spurrier No. 2, is being rigged up; Palmer Oil Syndicate's wildcat on the Gunher farm at Deanfield, several miles to the south of the Hurricane district, was progressing at 200 feet.

At Pellville, C. A. Leeper was drilling No. 10 Amanda Stewart at 230 feet; St. Louis parties are moving a rig to drill No. 3 Tom Jackson,. The wildcat test of the New Domain Oil Co. and others' on the Jess Powers farm east of Pellville and about 1½ miles northeast of the Jackson lease was shut down at around 800 feet without a show.

In the vicinity of Whitesville the Wood Oil Co.'s test on the Harrison farm, 1,500 feet west of the Oat Neal, will be abandoned at 816 feet; Nutty & Pyle are moving a rig to drill No. 1 Ves Haines to the east of the Oat Neal; C. E. Daugherty is spudding No. 1 Eliza Ward, 1½ miles north of the Oney Ward, recently abandoned. Cowling and others are moving a rig to the W. S. Howard farm north of Oklahoma and will spud in the first of the coming week.

Eastern Division

Only 10 completions were reported from the Eastern Kentucky Field the past week, 9 of which made producers with a flush of 50 bbls. and 1 dry hole. The duster was drilled by the Superior Oil Corp. in No. 1 Wagner in Elliott County, and was carried to a total depth of 800 feet.

An important test is now under way 1 mile above Elk Fork postoffice in Morgan County. It is being drilled by Wheeler and others and as it is located 6 miles west of the North Weir Field of Johnson County it is being watched very closely.

Lee County

In the Idamay district of Lee County, J. L. Upchurch finished a 10-bbl. pumper in No. 2 Horter-Treadway at approximately 1,200 feet. In the same vicinity, the Petroleum Co. got a 10-bbl. starter in No. 2 Eliza Brandenberg in the Irvine sand. The same company's initial test on the J. Unum tract tested 5 bbls. from the Irvine sand.

Johnson-Magoffin

In the North Weir district of Law-Magoffin Counties, the Little Paint Oil Co. finished No. 3 L. M. Kimbleton in district No. 30 for 7 bbls. at approximately 912 feet in the Weir sand. On the Branch Blanton place the Mid-South Oil Co.'s No. 2 tested 5 bbls. at 907 feet; Orrell & Thompson's No. 1 William Fulkerson made a 1-bbl. stripper at 942 feet; the Hargus Oil Co.'s No. 10 Mark Bayes pumped 2 bbls. from the Weir sand.

North Weir Field

In the North Weir district of Lawrence and Johnson Counties two small pumpers were finished in district No. 33. J. T. Hare & Sons' No. 2 J. D. Bond made 3 bbls. at 902 feet and the Indian-Tex Petroleum Co.'s No. 6 Jesse Rose settled to 4 bbls. at 940 feet.

TWO GOOD WELLS IN RICHLAND FIELD

CORSICANA, Tex., Oct. 4—The production of the Powell Field in Navarro County, for the week ending Tuesday, September 30, was 76,420 bbls. a day from 737 wells; Richland, 24,125 bbls. a day from 77 wells; Mexia, 25,825 bbls. a day from 510 wells and Currie 1,950 bbls. from 68 wells, a total of 105,270 bbls. a day from 1,394 wells.

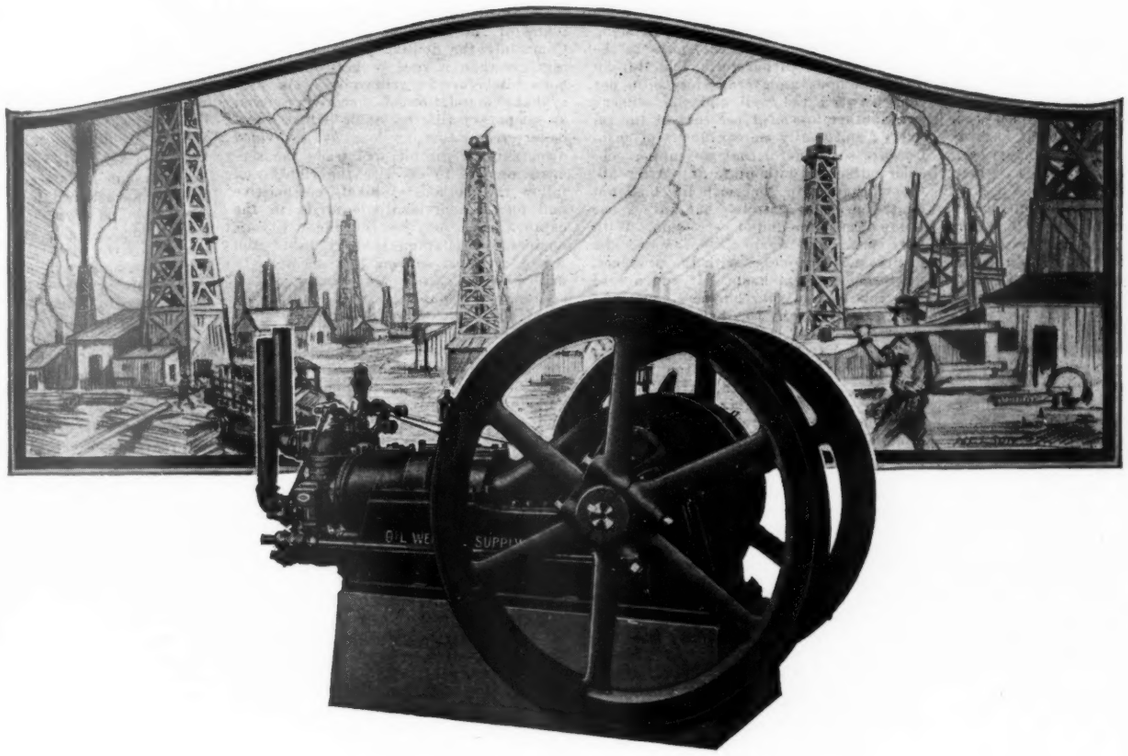
Two big wells were completed in the Richland Field in the course of the week in review. The Atlantic Oil Producing Co.'s No. 5 B. L. Swink was a 1,000-bbl. well from sand at 2,910-70 feet. Tucker and others' No. 3 Davis, on the John White survey, started at 1,400 bbls. from sand at 2,928 feet, total depth 2,982 feet. Miller Lewis' No. 1 H. A. Swink on the White survey tested dry and was abandoned at 3,253 feet.

John Hooser was rigged up for No. 3 Swink, White survey. The Sun Co.'s No. 15 Brown and 16 Brown on the White survey are drilling around 300 feet.

In the Powell Field the U. S. Tex. Corp. was on top of sand at 1,605 feet, which was the only new operation reported from that area.

In the Currie district Ben Strotman has a derrick up for No. 1 Marrow on the Currie survey.

WICO



Standard Equipment on Black Bear Engines

Wico Magnetos are now standard equipment on over 40 different makes of Gas Engines in Oil Field service.

The fact that Wico Magnetos have been adopted as standard equipment by more Stationary Gas Engine Manufacturers than all other makes of magnetos combined, proves beyond any doubt that Wico is recognized the World over, as the most reliable ignition system obtainable.

WICO ELECTRIC COMPANY
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Industry Needs Program for Profits

Must Plan Control or Face Disaster Declares Director George Otis Smith. Business Now Speculation Rather Than Investment

By George Otis Smith

Director of Geological Survey, Department of the Interior; Before International Petroleum Congress at Tulsa, Okla., Oct. 7, 1924

The petroleum industry—present and past—is best described as a frenzy of exploitation. A blind faith that demand will overtake supply, that prices will at least equal costs, that profits will reward perseverance is the only trace of sanity underneath the delirium everywhere seen in the hunt for oil. To the great hazards imposed on man by Nature have been added even greater hazards made by man himself. The romance of hidden wealth to be won for human use has too often been turned into the tragedy of lost fortunes and quickly exhausted resources. "Approaching demoralization" is the oft-repeated market report, but inveterate optimism reacts with the effervescent hope that consumption is beginning to catch up with production and that prices will soon be better. This industry presents a marvelous record of growth; during the present century the flow of oil has increased more than tenfold. Yet such rapid progress, with its consequent rapid exhaustion of pool after pool, district after district, has been a pace that only the very strong or the very lucky could stand. It is a pace that kills—and loses money. The outstanding need today, then, is to substitute thrift for waste—to adopt a program that will lead to profits.

Yours is an industry that has been wonderfully responsive to every demand made upon it. Inventive genius, masterful activity, and financial courage, energized by patriotic zeal, worked together during the war to provide the oil needed for victory; but unfortunately, when that urge of national self-preservation ceased, the feverish haste to bring the oil to the surface was not abated. Last year our oil wells yielded one-tenth of the oil produced in this country since the beginning and one-sixteenth of the oil yet produced in the world. This flood of oil didn't just happen—on the contrary, the spectacular strikes of new pools were the result of large investments of brains and brawn and cash; nearly 25,000 wells were drilled in that 12-month period, at a cost of more than $500,000,000 dollars. Yet you, who make up the backbone of the industry that works these wonders, realize all too keenly that this record-breaking output was not a profitable output.

Must Plan Control

You in the oil business must plan control of this flood or you face nation-wide disaster. Because you are producing oil before it is needed you are producing it at a loss. And the oil you needlessly produce now will not be there for you to produce when it is needed. The oil man's logical query is, where are my profits today? And the consuming public's proper query is, where shall we get our oil tomorrow? A program for profits would serve both private and public interest.

The economist tells us that petroleum, like the other mineral resources that make up so large a part of America's wealth, is a wasting asset. But we know it is worse than that; it is a wasted asset. Director Bain of the Bureau of Mines says: "Under present methods of production not more than a quarter of the oil in the ground is brought to the surface. It is often less and very rarely more." This measure of waste in production is astounding when we compare oil with almost any other natural product. In mining bituminous coal, for instance, the ration is reversed: A quarter of the coal is left underground and three-quarters brought to the surface. We speak of oil as labor-cheap; possibly this is true only because we have been too saving of labor and too wasteful of oil.

And the waste does not stop with the oil left in the ground; unfortunately we have acquired spendthrift habits all along the line from the oil in the sands to the gasoline in the carburetor. The Bureau of Mines finds an average loss of 6 per cent between the well and the refinery and another loss of 4 per cent at the refinery; and finally we consumers of gasoline are so wasteful that we cannot consider ourselves without fault. After all, the vital issue in American life may not be the price of gasoline but rather the waste of gasoline and of petroleum. With the consumer, waste is promoted by plenty and cheapness; with the producer, waste comes from haste. If you are to stop this leak in your business, you must ask yourselves, why this haste that makes waste?

Everything Speeded

It is all too evident that the oil business is traveling "in high," with the gear shift locked. Everything is speeded up; the urge of ever-increasing consumption stimulates the provision of surplus capacity in wells and refineries; then a lively competition among producers leads to an artificial stimulation of demand, and the merry round goes on. Even our laws foster free competition, when what we need is restraint. Public complacency and private initiative, both carried to excess, have conspired to accelerate the rate of speed until we wonder if the brakes would work under any condition.

So uncertain are profits under the present rules of the game that the business is a speculation rather than an investment. Thus it is that Mr. Pogue attributes the sharp increase in production during the last five years to the inflow of new capital in the expectation of a shortage of oil, as well as to the improvement in the technique of finding and getting oil. But along with this added capital used in legitimate development the lure of the oil game has attracted other money, which has flowed into other channels; the Postoffice Department estimates that the contributions of our citizens to fraudulent oil concerns have been in excess of $300,000,000 a year. Then they cry with good reason that the oil business smells to heaven, for unfortunately the public makes little or no distinction between the parasitic fraud and the legitimate industry. You who are building up a great industry deserve to receive the capital that now goes to the unscrupulous promoter and is thus worse than wasted, but you get only an undeserved share of the bad repute.

Hazard Should Be Reduced

Could a part of the hazard be removed from the present procedure of oil discovery and production, some of the waste be avoided, and more stabilization be introduced, you operators, engaged in the honest endeavor to produce oil, would be more readily distinguished from the gang of slick promoters who admit that the oil game is a gamble but point to the grand prizes won in this great American lottery. Under present conditions your great productive industry does not and cannot enjoy the degree of public confidence it should have.

First in the program needed to make the oil business safe for investors, operators and consumers I would put less speed and more return. Much, yes most, of the frenzied haste with which oil wells are put down, regardless of cost or of efficiency or of market conditions, is due to the fugitive nature of ownership in oil and gas. The rule of action adopted is 'Get while the getting is good," a kind of David Harum rule that not only violates the equities between property owners but lowers a great productive industry in this enlightened day to the economic plane of the chase of aboriginal times. Commonly the drilling program is nothing less than a race to get your neighbor's oil before he gets yours. On such a shaky foundation of tentative as well as temporary title no stable industry can be erected. Just as long as a divided ownership in the oil pool leads the separate owners to exercise the rights and follow the methods of highly competitive and purely individualistic strife in the capture of the oil, just so long will your business be characterized by haste and waste, and just so long will oil wells be drilled with greater and greater speed, seemingly without thought of capital cost or of market needs or of economic spacing or of conservation of gas. The fact that under the common law the proceeding is not illegal blinds us to the utter lack of equity or of economics in this game of grab. Far too many landowners and oil operators are now missing the profits that are their due, and the general public will later pay its share of the losses in this losing game.

Engineering Problem

The time and the place of drilling the wells required to take out the oil of a given pool should be treated as an engineering problem based on facts of geology and simple rules of economics, not controlled by the accidental relations of property lines. We must admit the need of more facts, but we should recognize the even greater need of making better and larger use of facts we already have. Geology has been applied far too exclusively to the mere finding of oil. It is all very well to charge or even to credit geology with responsibility for the overproduction of oil, yet it would be better to give the geologist larger responsibility in aiding the oil engineer to get more of the oil from the sands the geologist may have helped to find. Geologic science stands ready to take this part in your program for profits.

There are signs of better times—widespread interest in applying new methods of larger recovery in old and new fields; moves toward saving the gas in gas zones for use in increasing flow from oil sands; execution of plans of well spacing that will give a more effective drainage area to each well; efforts to consolidate leases under joint operation—all these are significant indications that the light is breaking in the west. But one and all of these reforms are inadequate unless you accept the basic principle of regard for the common interest; or, in plain language, unless you are ready to substitute the law of "love your neighbor as yourself" for the too commonly observed rule of "dog eat dog." Joint action that would weigh the equities of all landowners in an oil pool would result not only in a fair division of the proceeds but undoubtedly in more oil to be divided. Moreover, by avoiding the haste that wastes oil and disregards market supply—a double source of loss—the operation would yield the maximum profits.

Enlightened Self-Interest

With this showing of possible profits I believe I could rest the case of the advantage of an enlightened self-interest that works through a joint and concerted community interest. But I feel that no one is more eager than you to secure the longest possible life for your industry. Whatever the accuracy of estimates of total oil in the ground "recoverable under present methods," neither owner nor Nation should be content with present methods. If you could double the present percentage of recovery you would double the geologists' estimate of oil reserves, and even then half the original content of the sands would be left in the ground. The program that seeks to recover the highest percentage of oil at the lowest cost in wells and during the longest period consistent with supplying the normal demand is a program that is patriotic as well as profitable.

Even an absolute title to land is limited by the common interest of others; what we are accustomed to call "our own in fee simple" is always encumbered by "the correlation of rights and obligations necessary for the highest use of land by the entire community of proprietors." In a democratic society no land owner can live unto himself. Some day the courts, taking cognizance of the immoral and uneconomic aspects of town-lot drilling, may abandon the rule that was adopted from the common law relating to water in the excessively humid mother country and "apply a rule better calculated to protect oil not actually developed." It has been 65 years since the pioneers of your industry struck oil in Pennsylvania, 57 years since they struck oil in California, and 24 years since they struck oil in Oklahoma— isn't it high time that the legal talent you employ should consider constructively and cooperatively some rule of reasonable use? Such a rule should recognize the migratory and fugitive nature of oil and yet provide for its more equitable division among landowners than is possible under the present practice of capture through wasteful competitive drilling. Individuals among you can outline the program needed, but only the united action of the producers can put into full operation the reform that will stop the waste due to haste.

ANDREW BENSON MET WITH FATAL INJURY

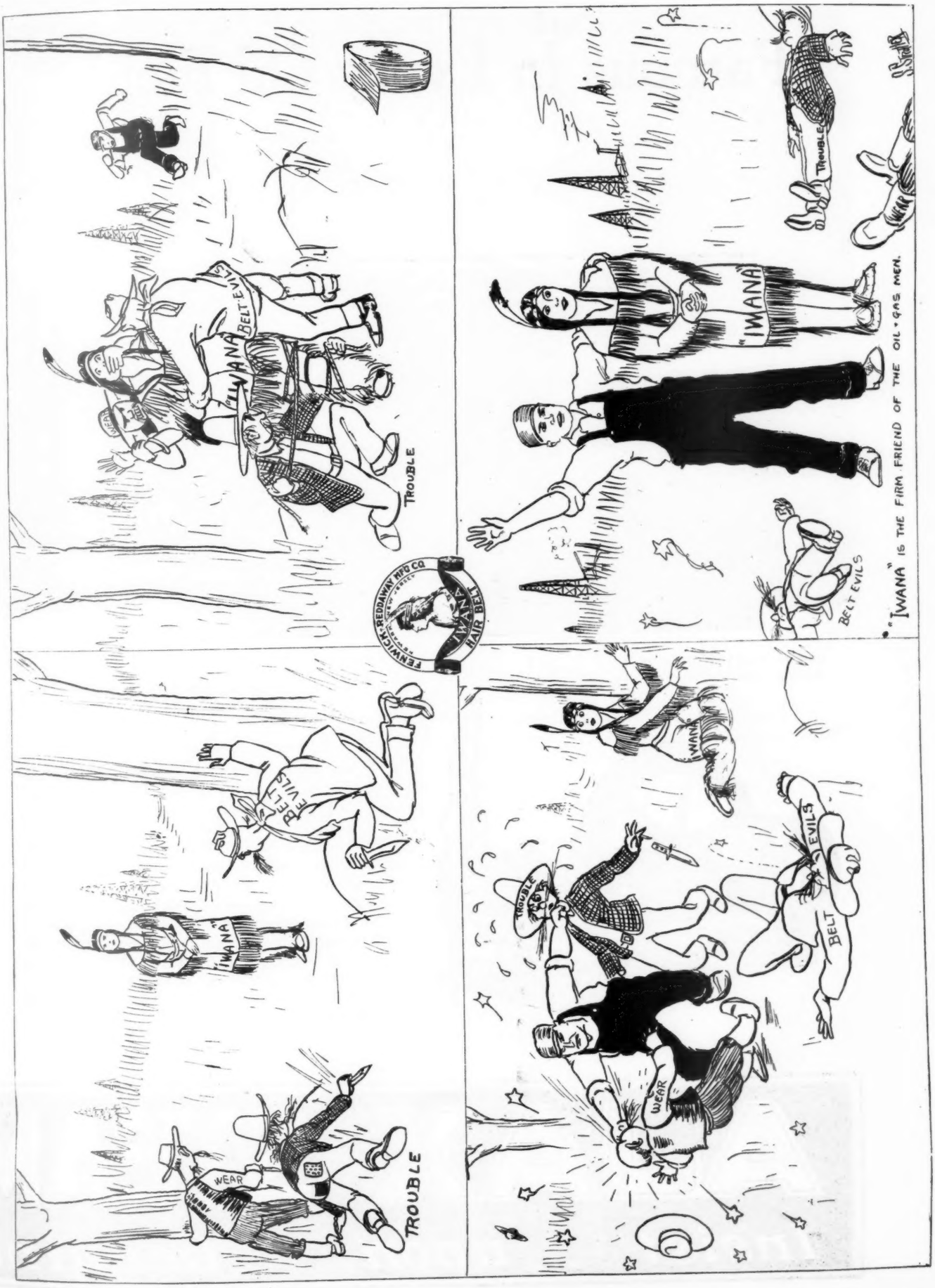
A ruptured bladder, sustained Friday, September 19, near Chautauqua Lake, New York, resulted in the death of Andrew Benson, aged 60 years, a prominent oil operator of Independence, Kans., at Jamestown, N. Y., Sunday September 28, who was there recuperating from a recent operation.

Funeral services were held Tuesday afternoon at Jamestown, N. Y., from the Emanuel Lutheran church and burial was in that city. His wife and son, Carl W. Benson, of Independence, were at his bedside when death came.

About nine weeks ago Mr. Benson was operated on at the Westside hospital for gallstone and the operation was a success. He went to his summer home near Chautauqua Lake, New York, to recuperate and was progressing satisfactorily. While other members of the family were in Buffalo a storm came up and he pulled his motor boat in close to the shore. A rupture of the bladder came from the heavy strain. This was in the evening and as a physician could not be secured he was taken to Jamestown, 14 miles away, for medical aid. His condition grew worse rapidly.

The deceased is survived by his wife, one son, Carl W., two sisters, Kea Erickson, widow of Andrew Erickson; Mrs. Christine Benson, wife of Andrew Benson (not related); one brother, Olof Benson, who lives at Jamestown. Olof Benson resided at Wayside and Independence for 12 years. One son, Thatcher Wyllys, died in France during the late World War while serving his country.

Mr. Benson was president of the Benson Oil & Gas Co., and the State Line Oil & Gas Co.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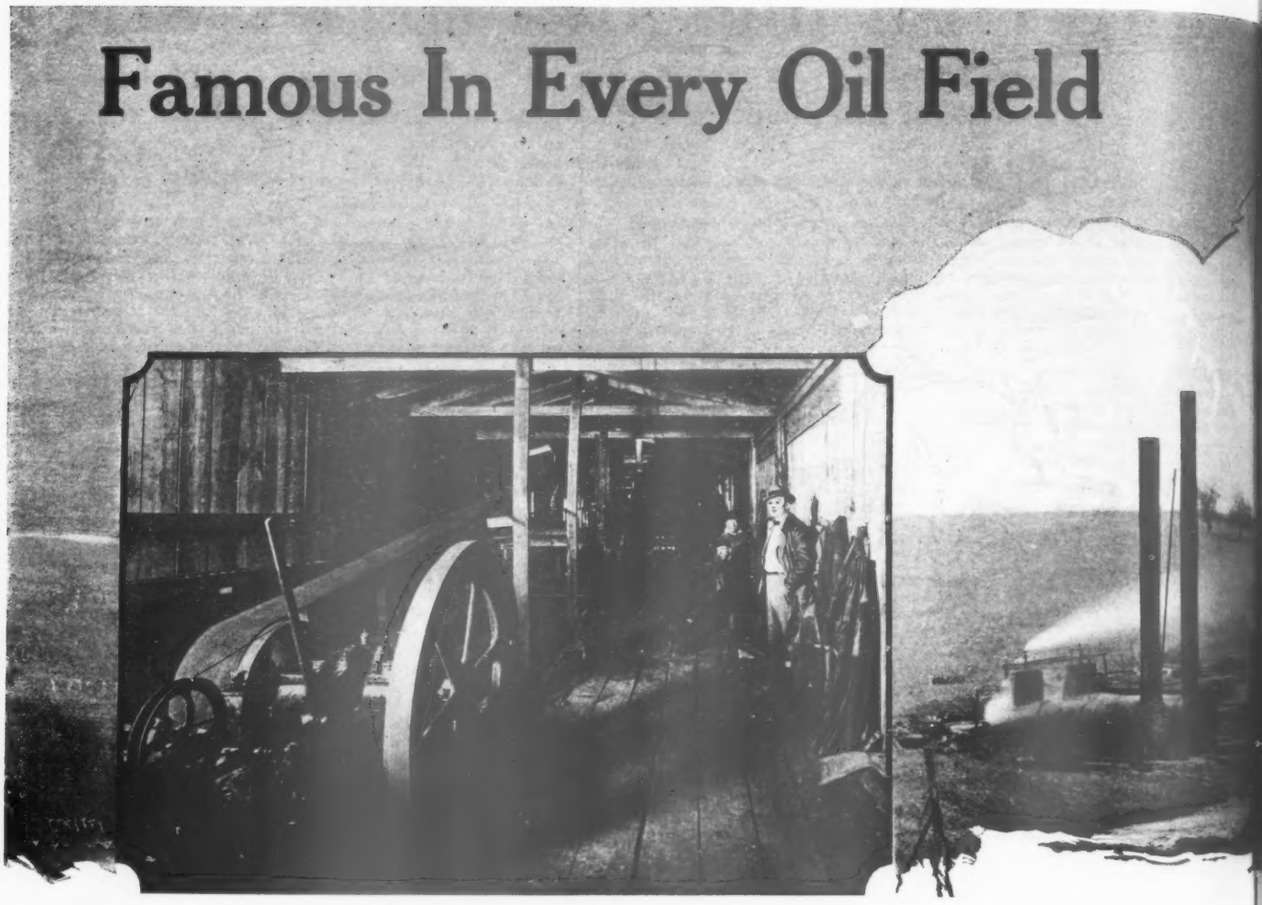
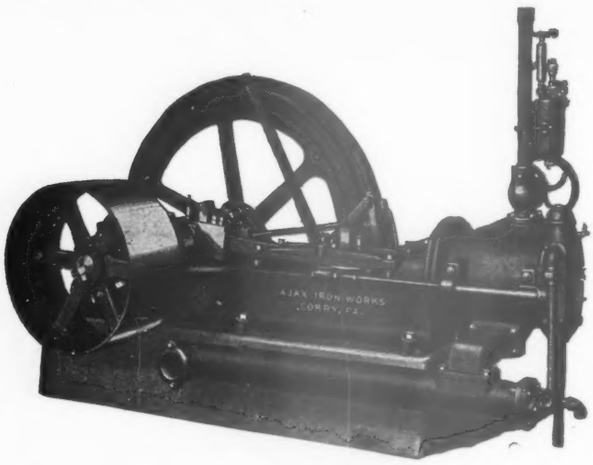


Interior view of engine house showing Ajax Drilling Engine.



Location of Oklahoma's Deepest Well and the Records It Made

The deepest well ever drilled in Oklahoma is located in the northwest corner of the northeast forty of the southwest quarter of Section 7-7-10. Spudded in by the Kingwood Oil Co., May 10, 1923 using a 14″x14″ Ajax Drilling Engine and completed January 24, 1924 with a total depth of 5,281 feet. The first 5,000 feet was drilled in 175 days, the fastest time on record for cable tools. In the 235 days of drilling only one shut down of five hours was necessary and that for fishing. 246 tons of casing was used and not a foot lost. The rig contained 100,000 feet of lumber which is more than three times larger than the average rig used in Oklahoma.

AJAX STEAM

Insist upon Genuine A

Ajax Makes Records in Oklahoma

The illustration shown above is a general view of the deepest well ever drilled in Oklahoma. It is 5,281 feet deep, the first 5,000 feet being drilled in 175 days. An Ajax 14″x14″ Drilling Engine was used in making this record and like many other Ajax Engines in the field today it completed its work without need of repair.

Field operators and owners realize that the Ajax Drilling Engine gives the best and longest service without shut-downs for repairs. They realize that genuine replacement parts save them time and money in the long run.

Manufactured by

AJAX IRON WORKS, Corry, Pa.

Distributed by

NATIONAL SUPPLY COMPANIES

In Every Oil Field

34105

DRILLING ENGINES

Ajax Replacement Parts

OKLAHOMA

(Continued from Page 54)

10 bbls. on the pump, along with lots of water. McKeon & Mallory's No. 1, SW cor. SE, same section, was abandoned as dry at 2,658 feet. Their No. 2, CWL SW SE, same section, topped the Mississippi lime at 2,456 feet and the hole filled with water at 2,875 feet. The well was drilled on to 2,970 feet, then plugged back to the Burgess sand at 2,336-2,422 feet, where it made 15 bbls. on the pump.

The Red Bank Oil Co.'s No. 4, CEL NE SW, Section 20-23-8, was put on the pump and made a 30-bbl. well from pay at 2,873-2,925 feet. The big lime was topped at 2,552 feet. The Marland Refining Co. abandoned the rig for its No. 5, CSL SE NW NE, Section 29-23-8.

A duster was abandoned at 2,687 feet by R. E. Seaman and others in their No. 1, CSL SW, Section 26-26-8.

The Empire City Oil Co.'s No. 8, CWL SW SE, Section 10-27-10, topped the Mississippi lime at 1,969 feet and found pay from that depth to 1,999 feet good for 30 bbls. on the pump, following a shot of 80 quarts.

Moving in Tools

In the southwestern part of the county, the Alcorn Oil Co. had a rig up and was moving in tools for its No. 1, NE cor. SW, Section 24-21-9.

The City of Pawhuska shut in its No. 10, CSL NE SW, Section 26-26-8, for 7,258,000 feet of gas in sand at 1,150-91 feet.

Henderson & Holden abandoned their No. 4, C SE, Section 10-25-8 as dry at 2,396 feet. The same interests were building a rig for No. 5, CNL NW NE SE, same section. The Texas Co. was building a rig for its No. 11, C NE NE, Section 29-25-8. The Marland Refining Co. abandoned its No. 1, NW cor. SW, Section 34-25-8, as a failure at 2,875 feet.

The Peters Petroleum Co. was building a rig for its No. 3, NE cor. SE, Section 6-22-9.

Just north of Tulsa in Osage County, the Shaffer Oil & Refining Co. and Winona Oil Co. abandoned their No. 1, NE cor. SE NW, Section 29-20-12, as dry at 2,241 feet. It was on old well.

The Mid-Kansas Oil & Gas Co.'s No. 5, C SW NE SW, Section 12-23-8, was shot with 100 quarts in the Bartlesville sand at 2,066-2,100 feet and was being cleaned out. The Marland Refining Co. was building a rig for its No. 10-B, CSL NE NE SE, Section 20-23-8, and was spudding its No. 13-A, C SE, Section 20-23-8. The Mutual Oil Co.'s No. 1, CNL SW, Section 34-23-8, was dry and abandoned at 2,871 feet.

Pawnee County

In Pawnee County, Chandler & Kelly's No. 1 Hill, NE cor. SW, Section 1-21-5, was making 280 bbls. of oil and 125 bbls. of water on the pump from sand at 3,379-80 feet.

Haley, Garber & Pulse reached a sand at 3,186-3,202 feet in their No. 1 Phillips, NE cor. SW NE, Section 5-23-5e, which was estimated good for 50 bbls., having filled the hole 1,900 feet with oil over night.

The Texas Co. was drilling at 2,820 feet in its No. 1 Ellis, NW cor. Section 27-20-6, an old well.

The Josey Oil Co.'s No. 1 Peck, NE cor. SW, Section 1-20-6, was dry and abandoned at 3,570 feet. The Magnolia Petroleum Co.'s No. 2 Burgman, C SE NW SE, Section 16-20-6, was spudding as was also the Privitt Drilling Co.'s No. 2, NE cor. NW NW, Section 21-20-6. The Westerly Oil Co.'s No. 4 Smith, NW cor. SW SW, Section 22-20-6, was a 13,000,000-foot gasser from sand at 3,025-92 feet, first gas having been reached at 3,085 feet.

The Josey Oil Co deepened an old well, its No. 1 Rhodes, NE cor. Section 28-20-6, finding sand at 3,055 feet and oil at 3,089-3,105 feet. It made 780 bbls. natural the first 24 hours and 720 bbls. the third day.

The Cosden Oil & Gas Co. was drilling at 1,140 feet in its No. 4 Wood, NW cor. Section 16-20-7.

Kay County

In northern Kay County, the Vernon Oil & Gas Co. was spudding its No. 2, W cor. SE, Section 17-29-1e, at 40 feet. The Twin State Oil Co.'s No. 1, SE cor. same section, was a rig. The White Eagle Oil & Refining Co. was drilling at 700 feet in its No. 1, NW cor. SW, Section 22-29-1w.

The Otstot Development Co.'s No. 1, SE cor. NW, Section 16-27-1w, was shut in for 20,000,000 feet of gas in sand at 3,430-54 feet, with total depth at 3,475 feet.

In Noble County, the Tidal-Osage Oil Co. abandoned its No. 1, NE cor. Section 11-23-2w, as dry at 2,863 feet.

In Garfield County, Snoddy and others had 500,000 feet of gas in their No. 1, NW cor. NE NE, Section 36-23-4w, from sand at 1,133-48 feet. The Sinclair Oil & Gas Co.'s No. 10, NW cor. Section 30-22-3w, was spudding at 45 feet. (It is a twin to No. 2.) The Imo Oil & Gas Co. had a 38-bbl. well in its No. 1, NE cor. NW SW, Section 31-22-3w; from sand at 2,174-92 feet.

Snoddy and others shut down for orders in their No. 1, NW cor. NE NE, Section 36-23-4w, with 500,000 feet of gas in sand at 1,133-34 feet.

The Crews Heirs' No. 23 Crews, CSL SE SE SW, Section 19-22-3w, was good for 80 bbls. on the pump from sand at 2,020-38 feet, total depth being 2,040 feet.

In Grant County, the Western States Oil Co.'s No. 1, SW cor. Section 14-27-3w, an old well, was shut down at 4,113 feet making 22,000,000 feet of gas. Sand was at 4,068-4,112 feet. Same company's No. 1-A, NE cor. Section 27-27-3w, another old well, was making 33,000,000 feet of gas from sand at 4,000-36 feet, total depth being 4,063 feet.

Near Madill, in Marshall County, Deese and others had a machine on the ground for their No. 1 Null, NE cor. NW NE, Section 24-5s-5e. The United Oil Co. abandoned its No. 1 Merriman, CNL NW SW NW, Section 36-5s-6e, as dry at 2,320 feet. Carpenter's No. 1, CEL SE SE SE, Section 25-5e-5e, topped a sand at 472 feet which put 50 feet of oil in the hole. Allexander and others' No. 1 Brown, CEL SE SE NE, same section, had 100 feet of oil in the hole from sand at 492,506 feet.

East of Durant in Bryan County, Jack Hammock had a fishing job in his No. 1, C SE NE NE, Section 15-6s-11e, at 800 feet.

Creek County

In Creek County, the Shaffer Oil & Refining Co.'s No. 2, NW cor. SW, Section 13-19-8, was a 10-bbl. well natural from sand at 1,569-80 feet and was to be shot. Gowland and associates had a rig on the ground for their No. 1 Lewis, NE cor. SE, Section 14-19-8.

On the Creek County side of the Stroud Field, the Amerada Petroleum Corp.'s No. 10 Lewis, CEL SE NW SW, Section 7-14-7, produced 400 bbls. natural from sand at 4,105-66 feet. The same company's No. 11 Lewis, SE cor. NW SW, same section, was good for 426 bbls. natural from sand at 4,095-4,168 feet. The Roxana Petroleum Corp.'s No. 2 Jack, NW cor. SE NW, same section, which came in as a 1,335-bbl. producer from sand at 4,126-67 feet, and later declined to 400 bbls., was jazzed up with a shot of 75 quarts, responding with an increase to 800 bbls. The Waite Phillips Co. also treated its No. 4 Jack, NE cor. NW NW, Section 7-14-7, to shots of 40 and 20 quarts, raising the production from 333 bbls. natural to 631 bbls. Latest gauge reported was 507 bbls.

Cameron and others had a rig up for their No. 1 McDermott, CEL NE NW, Section 9-16-9.

The Independent Oil & Gas Co. was plugging back from 3,198 feet to 2,705-28 feet in its No. 1 Harrison, NE cor. SE SW, Section 36-16-10. Same company had a rig on the ground for its No. 1, NE cor. SW, same section.

Tim Cushing and others shut down their No. 1, C S half NE, Section 11-17-8, at 265 feet. The Laurel Oil & Gas Co. had a rig up for its No. 8 Knoll, NW cor. SE SW, Section 22-16-8.

The Bu-Vi-Bar Petroleum Co. was spudding its No. 1 Harjo, C SW NE, Section 18-17-9, and the Damar Oil Co. had a rig up for No. 1 Anderson, C NW SE NE, Section 19-17-9.

The Kanawa Oil Co.'s No. 2 Knight, SE cor. NE SE, Section 16-15-8, an old well, was drilling at 3,435 feet. J. W. Henry's No. 1 Davy, NW cor. SE, Section 2-14-8, was drilling at 500 feet. C. G. Tibbens' No. 1 Bearhead, C NE NW NW, Section 13-14-8, was also drilling at 480 feet.

Kansas Oil Field News

By C. D. Lockwood

The completion of the twelfth well in the Rainbow Bend Pool of Cowley County, extending the producing area with output practically equal to the wells in the center of the pool, featured the week in the southern Kansas Fields, while the discovery of an oil showing in Barton County held the attention of those chiefly concerned with the western areas and all wildcat operations. An oil showing between the Eastman and Fox-Bush Fields that may link the two was another center of interest in Cowley County. Nothing new developed north of the Oswald Pool, in Russell County, where the White Eagle Oil & Refining Co. and others were fishing for a bit in their No. 1 Dodge, SE cor. SW, Section 29-11-15w. Work was delayed while they were fishing for a bit lost in the hole.

The Prairie Oil & Gas Co. has abandoned its No. 1 Wernet, SW cor. SE SW, Section 14-20-6w, Rice County, below 3,615 feet. The Rino Oil Co. was running the 5-inch casing to resume drilling in its No. 1 Deeds-O'Day, SE cor. SW NW, Section 35-19-6w, after a shut-down of about two months, at 3,750. It is probable that no further work will be done on the same company's No. 1 Bush, NE cor. Section 7-20-6w, until the outcome of this deepening operation is determined. The tools were dropped in Hipple and others' No. 1 Sallee, C NW SE NE, Section 3-22-6w, and efforts to recover them were so far unsuccessful.

A new test for Saline County has been announced by R. A. Brett of the Brown-Woodward Oil Co. It is to be located in the SE cor. of Section 26-15-2w, and will spud in about or before November 15. The same company plans to drill another in the northeastern part of Lincoln County, about 9 miles north of the Amerada Petroleum Corp.'s No. 1 Crawford, and another south of Cawker City, in Mitchell County. They also plan to test a structure about 4 miles southwest of Minneapolis, in Ottawa County.

The Roxana Petroleum Corp. is reported to have purchased a block in the Cheyenne Bottoms.

Rainbow Bend Extension

An extension to the Rainbow Bend producing area, in Cowley County, was effected when the Waite Phillips Co. and others brought in their No. 1 Nelson, SW cor. SE NE, Section 20-33-3 good for 1,180 bbls. in 24 hours from sand at 3,201-12 feet. Sunday it made 500 bbls. in 12 hours.

One of the most important developments of recent weeks was a showing of oil in Barton County. It was found in Jasper & Beschka's No. 1 Schaff, SE cor NW, Section 11-16-12w, at 3,204 feet. The hole caved and was being cleaned out. The amount of the showing could not be ascertained.

Another well that was watched closely during the past few weeks but which has apparently passed up its chance was the Alcorn Oil Co.'s No. 1 Beeler, in the NE cor. Section 10-9-8w, in Mitchell County. It was drilling in shale at 3,230 feet on Monday and up to that time had encountered no shows of any kind.

Kansas field operations increased a little during the week ended September 27. There were 2 more locations, 8 more rigs up, 12 more wells shut down and 22

(Continued on Page 228)

The Carter Oil Co. shut down its No. 1 Smith, NW cor. SW NE, Section 2[illegible] 15-9, at 1,150 feet. F. R. Billingsley's No. 2 Fields, NW cor. SW SE, Section 30-15-9, was shut in with a hole full of oil from sand at 3,021-22 feet. H. C. Wilson's No. 1 Ashbury, SE cor. NE, Section 1-15-10, was good for 10 bbls. from sand at 2,610-26 feet. Total depth was 2,700 feet. His No. 1, CEL NE SE NW, Section 4-14-10, made 60 bbls. after a 50-quart shot in sand at 3,[illegible]-66 feet.

The Atlantic Oil Producing Co. was drilling at 350 feet in its No. 1, C NW SW SE, Section 17-14-10.

The Burke-Greis Oil Co.'s No. 3 Barnett, NE cor. SE NE, Section 31-14-[illegible] Tuskegee Pool was good for 447 bbls. natural from sand at 3,422-32 feet.

In Cromwell Field

In the Cromwell Field, the Carter Oil Co. was drilling its No. 3 Hill, C SE NW NW, Section 10-10-8, at 685 feet and its No. 2 Little, C SE SW NE, same section, at 310 feet. Same company was moving in a rig for its No. 3 Little, C SW SE NE, same section. The McMan Oil & Gas Co. was spudding its No. 2 Little, C NW NW SE, Section 10-10-8. The Roxana Petroleum Corp. was drilling at 1,590 feet in Its No. 4 Berryhill, C SE SE NW, Section 10-10-8, and at 1,175 feet in No. 1 Berryman, C SE NE NW, same section, and at 1,957 feet in No. 3 Berryman, C NW NE NW, same section. The Burke-Greis Oil Co.'s No. 3 Brown, C SE SE SW, Section 10-10-8, topped sand at 3,419 feet and was making 25 bbls. an hour at 3,539 feet, along with 50,000,000 feet of gas. The Cosden Oil & Gas Co. was spudding its No. 4 Harjo, C NE SW NE, Section 15-10-8. The Houston Oil Co. was drilling at 750 feet in No. 1 Harjo, C SW NE SE, same section. The Roxana Petroleum Corp. was below 2,027 feet in its No. 2 Tiger, C NW SE NE, same section, and the Waite Phillips Co. shut down its No. 2 Tiger, C SE NE NE, Section 15-10-8, at 550 feet.

The Gilliland Oil Co.'s No. 7 Proctor, C NW SW NE, Section 16-10-8, was good for 103 bbls. natural from sand at 3,415-3,528 feet. Total depth was 3,535 feet. The Roxana Petroleum Corp. was spudding at 35 feet in its No. 1 Proctor, C NE NW SW, Section 16-10-8.

The Waite Phillips Co. was drilling at 595 feet in its No. 2, C SE NE SW, Section 16-10-8, and was spudding No. 4, C NW NE SW, same section. The Independent Oil & Gas Co.'s No. 3 Harjo, C NE SW NE, Section 21-10-8, found oil sand at 3,531-56 feet and made 50 bbls. natural. The Berry Petroleum Co. abandoned its No. 3 Yarhola, C SE NW NE, Section 22-10-8, as dry at 3,530 feet. The Carter Oil Co. also abandoned its No. 1 Yale, C NW SE NE, same section, at 1,620 feet.

The Cosden Oil & Gas Co.'s No. 1, C SE SE SW, Section 4-10-8, was drilling at 810 feet.

The Pure Oil Co.'s No. 4, C SW SW SE, Section 9-10-8, topped the sand at 3,416 feet, found first oil at 3,439 feet and a shale break at 3,475-77 feet. It was standing at 3,479 feet in sand making 15,000,000 feet of gas and 75 bbls. of oil daily. The same company's No. 10, C NW NE SE, same section, was drilling at 290 feet and No. 12, C NE NW SE, same section, was spudding.

Okfuskee County

South of Okeman in Okfuskee County, the Empire Gas & Fuel Co. and Gibson had a rig up for its No. 1, C NW NW NW, Section 30-11-10.

The Berry Petroleum Co. was underreaming the 15-inch pipe to 870 feet in its No. 1 Carolina, C SW SW NE, Section 31-10-9.

In the northeast extension of the Papoose Pool, the Prairie Oil & Gas Co. was drilling its No. 1 Sawyer, C SW NW SE, Section 35-10-9, at 540 feet. C. L. McMahan was drilling his No. 1 Dunson, C SE SE NW, Section 35-10-9, at 800 feet.

In other parts of the same township, the Berry Petroleum Co. was moving in a rig for its No. 1, C NE NE SW, Section 8-10-9, and Bingham and others had a rig up for their No. 1 Sawyer.

(Continued on Page 218)

Yesterday

Today it is Wertzbergers

Be Sure to See the Wertzberger Derricks at the Exposition

Wertzberger Derrick Co. Tulsa, Okla.

An Inspiration and Its Grand Results

Drake Well Had An Interesting Background While Events Following It Were Both Exciting and Amusing. Disposition of Relics

By John J. McLaurin

Seven months of the last year of the fifth decade of the last century had gone and everything was ripe for the advent of a new era of endeavor and attainment to add incalculably to the comfort and wealth of mankind. The dreadful June frost had blighted crops and hopes in western Pennsylvania, sending food to famine prices and spelling ruin for many a hapless family. This nation faced its gravest crisis, the black clouds of impending conflict darkening the horizon, and the Civil War knocking at the door to claim its awful toll of blood and treasure. The country must have more exports to hold the balance of trade with Europe and prevent the drainage of gold. "Man's extremity is God's opportunity," "coming events cast their shadows before" and relief from an unexpected quarter was at hand, petroleum solving the problem and a chain of significant circumstances leading up slowly and surely to the consummation.

Carl Reichanbach, a German chemist, and Louis Selligne, of France, each unaware of the other's experiments, about 1826 discovered paraffin.

Salt wells his father put down opposite Tarentum, claimed to be the first ever drilled in Pennsylvania, led Samuel M. Kier to analyze the oil on the water, culminating with his selling it for medicine and refining small lots in 1849

Dr. Abraham Gesner in 1846 burned in lamps oil obtained by distilling coal, securing a patent in 1854, under which the North American Kerosene Gaslight Co. manufactured "kerosene oil" at its works on Long Island. Luther Atwood and Joshua Merrill, connected with the company, perfected improvements in distillation which were tried successfully in March, 1858, upon nine bbls. of Tarentum, Pa., crude, sold by A. C. Ferris & Co., New York, who dealt in lamps and oil products and had contracted with a Pittsburgh firm for two bbls of petroleum a week. Another consignment of 19 bbls. in April turned out "carbon oil" of superior quality, Stout & Hand, Brooklyn grocers, buying the first barrel at 70 cents per gallon.

The same year Colonel Ferris, farseeing and resourceful, visited Tarentum, bought the Peterson-Irwin wells on the Humes tract, organized the "Tarentum Oil, Salt & Coal Co." and commenced to dig a shaft to the prolific rock. The company's officers believed it feasible to delve into the bowels of the earth with pick and shovel and disclose a monstrous cave of brine and oil. Miners imported from England worked in shifts of nine men for two years, sinking 400 feet and forced by gas and fresh water to abandon the task.

Ferris in 1862 organized the Powell Oil Co., paid $50,000 cash for the Shirk farm, midway between Oil City and Franklin, drilled a dry hole, surrendered the property and resided in the metropolis to the end of his busy career a few years ago. Charles Lockhart, of Pittsburgh, in April, 1853, purchased three barrels of Tarentum oil from Isaac Huff, delivered it to Kier's tiny refinery on Seventh Avenue and the old Canal, Pittsburgh, contracted for more and acquired control of the salt works.

A Polish chemist exhibited a sample of refined oil at the World's Fair in London in 1851, landing a princedom for his pains.

The United States Chemical Manufacturing Co. obtained lubricating oil from coal-tar in 1853, at Waltham, Mass., and in 1857 the Downer Kerosene Oil Co. made mineral oils from New Brunswick albertite, at its Boston plant. Samuel L. Downer, a man of remarkable foresight and enterprise, expended $500,000 on the works, erecting subsequently a smaller edition at Portland, Maine, and crowning his strenuous life by rearing the great refinery at Corry that signalized an epoch in petroleum's advance. The success of Young and Gesner prompted him and numerous companies to engage in the manufacture of coal oil, some erecting new plants at suitable points and the owners of fish oil works remodeling them to meet the changed conditions. Fifty-three firms and corporations were so employed, three of them at Kiskiminetas, Pa., and three nearer Pittsburgh, at the close of 1859, the dawn of the petroleum day that shall have no sunset.

The story of struggle and triumph that set petroleum on its onward, upward march should be imbedded firmly in the mind of every man, woman, schoolboy and schoolgirl. The price of "kerosene" or "carbon oil," always high, advanced to $2 per gallon, resulting in an exhaustive scrutiny by the foremost scientific authorities into all the varieties of coal and bitumen, out of which comparisons with petroleum developed incidentally, finally determining its economic merit. Benjamin Silliman, Jr., professor of Chemistry in Yale College, in the spring of 1855 concluded a thorough analysis of oil from a "spring" on Oil Creek, 2 miles below Titusville, Pa., where traces of pits cribbed with rough timber still remained and the fluid had been skimmed for two generations. Professor Silliman observed in the course of his elaborate report:

"It is understood and represented that this product exists in great abundance on the property; that it can be gathered wherever a well is sunk, over a great number of acres, and that it is unfailing in its yield from year to year. The question naturally arises, of what value is it in the arts and for what uses can it be employed? * * * The crude oil was tried as a means of illumination. For this purpose a weighed quantity was decomposed by passing it through a wrought-iron retort filled with carbon and ignited to redness. It produced nearly pure carburetted hydrogen gas, the most valuable of all carbon gases. In fact, the oil may be regarded as chemically identical with illuminating gas in a liquid form. It burned with an intense flame. * * * The light from the rectified naphtha is pure and white, without odor, and the rate of consumption less than half that of camphene or rosin-oil. * * * Compared with gas, the rock oil gave more light than any burner

(Continued on Page 236)

Tarr farm, Oil Creek, the scene of 3,000 and 4,000-bbl. wells in early days.

Talking only about the fuel used in operating a Cracking Process is like talking about the cost of peanuts in the family budget

It's what you get for what you pay that counts and nothing else

50 gallons of good gasoline are now being produced from each 100 gallons of gas oil run once through the Dubbs Cracking Process and you can duplicate the result when running what's left from the first operation

A double Dubbs Unit will now handle 1500 barrels of gas oil per day, even though we only promised 1000 But we always take delight in doing more than we promise It's a keen pleasure and avoids apologies and explanations

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EQUIPMENT AND SUPPLIES

MERGER OF WESTERN ENGINE COMPANIES

Two of the largest builders of internal combustion engines on the Pacific Coast were merged recently when the Enterprise Engine Co., of San Francisco, Cal., and the Western Machinery Co. of Los Angeles, were brought together to make one powerful organization. The Western Machinery Co. is the older in point of years, having started the manufacture of internal combustion gas and gasoline engines approximately a quarter of a century ago as the Western Gas Engine Corp. at the site of the plant No. 1 of the Western Machinery Co. in Los Angeles. The success of the original type of engine created a demand for internal combustion engines for other kinds of service, so that the company began adding to its line various types of engines for different power requirements.

After the successful invasion of local fields in California, the Western Machinery Co. branched out into broader markets. Foreign distribution was decided upon and the engines were sent to Europe, South America, the Far East and the Orient. With the expasion in and the Orient. With the expansion in forced to keep pace and the organization grew rapidly. The company now has three large factories in operation, each one fully equipped and independent of the others, producing Western engines of various types.

The Enterprise Engine Co. was started early in 1916 in San Francisco. This company's original engine was designed for marine work, although a stationary type was also built. The progress of this company, as in the case of the Western Machinery Co. also, brought out the development of engines of the Diesel type. This coincidence brought the concerns together and was the real factor in bringing about negotiations which resulted in the merger. With the complete facilities of both companies combined, and reorganized the united concerns are expected to become an important factor in the industrial activities of the western part of the United States.

ENGINEERING BOOKLET HAS VALUABLE TABLES

Numerous engineering tables and much additional useful information is contained in a booklet issued by the Aldrich Pump Co., of Allentown, Pa. One of the most interesting is the distribution and comparison of energy diagram. Such subjects as velocity head, static head, dynamic head, suction lift, suction head and viscosity are discussed, along with tables showing the capacities of single-acting triplex pumps, single-acting quintuplex pumps, and capacities in U. S. gallons of cylinders of various diameters and lengths. Pump plunger loads in pounds, friction loss of water in feet per 1,000 feet, friction loss of water in feet in smooth 90-degree elbows, table for equalizing pipes and input horse power necessary at various efficiencies, are only a few of the valuable tables included in the publication.

"SPEEDIER PRODUCTION"

The Detroit Electric Furnace Co. has just had issued a catalog, describing in detail, the advantages, performances and results obtained with its electric brass furnaces in the brass melting field. The outstanding features claimed, economy, mechanical control and speed of production, are clearly enumerated and described. This booklet is known as the "Speedier Production—Better Brass" catalog and contains very important and specific information with many illustrations.

TUBE COMPANIES FIGURE NEW LISTS ON ELIMINATING PITTSBURGH PLUS

By B. E. V. Luty

PITTSBURGH, Pa., Oct. 6.—The National Tube Co. has not yet issued new price and discount lists, in connection with the elimination of the Pittsburgh plus system of selling, and is presumably still working up details. No information is being given out, but it is suspected that possibly oil country goods will eventually be quoted in a different way, possibly on a list and discount basis, like merchant pipe, instead of net prices per foot being quoted.

The Youngstown Sheet & Tube Co. has announced that it will sell merchant pipe f. o. b. its Evanston and Indiana Harbor plants, in the Chicago district, at 60 per cent basing discount, or two points above the Pittsburgh basing discount of 62 per cent in force since April of last year. How it will sell the product of its Youngstown plant has not been announced.

It seems to be well established now that the National Tube Co. will have the same basing prices f. o. b. Pittsburgh district mill and f. o. b. Lorain. For distant points freights are the same from Wheeling W. Va., and McKeesport, Pa., where the National has plants, both points being considered by the railroads as being in the Pittsburgh district, although Wheeling is considerably outside the conventional 40-mile radius from the courthouse in Pittsburgh, which used to define the Pittsburgh district for railroad purposes.

New Basing Points

Presumably the National Tube Co. will have to meet delivered prices made by the Youngstown Sheet & Tube Co. at its Chicago district plants, for otherwise it would be at a disadvantage since the Youngstown Sheet & Tube Co. will naturally meet the National's delivered prices based on Pittsburgh or Lorain, as Youngstown is just between those points.

The steel market as a whole seems to have lost a trifle more in point of activity in the past week. There is a good volume of buying, in point of tonnage, the market being by no means stagnant, but there is not altogether as much activity as in the latter part of August.

From week to week, and almost from day to day, there are fluctuations in operations at various steel plants, as buying is almost entirely for prompt shipment and mills are scheduling orders practically as fast as received. The general average of operation of the whole steel industry is estimated at between 55 and 60 per cent, there having been no decided change in the past month. The present indication is that the next change in operations will be a deacrease, while at the beginning of September the prospect seemed to be that there would be a continuance of the increase that had been seen since the middle of July.

Prices Weaken

Steel prices in general show a slight weakening tendency, but there are no substantial declines, except the declines produced in certain areas by the establishing of new basings in connection with the elimination of Pittsburgh plus. The principal declines in this connection thus far are in territory tributary to Chicago district mills in wire products, sheets and pipe. Wire products f. o. b. Chicago district mills are now $2 a ton above prices f. o. b. Pittsburgh or Cleveland mills. Sheet prices f. o. b. Chicago district mills are $3 a ton above f. o. b. Pittsburgh district mills, while as noted earlier in the present report the Youngstown Sheet & Tube Co.'s pipe prices f. o. b. its western mills are two points above prices f. o. b. Pittsburgh mills, a point being approximately $2 a net ton, though on account of the extra trimming of 5 per cent the actual amount is rather $1.90.

Contracting for oil storage tanks continues active. A Chicago fabricator is reported to have placed 5,000 tons of plates with a mill during the week for oil storage tank work. This represents the chief activity of the oil industry now in the steel market, as there is no line pipe business of consequence and buying of wells material has dropped to below normal.

SECTIONAL CONDENSER DESCRIBED BY MAKERS

A condenser of particular interest to oil refinery men is now being built by the Griscom-Russell Co., of New York City. This apparatus, built in two or more sections, will operate either as a standard, reflux, or partial condenser, and can also be used as a condenser and heat exchanger at the same time.

For standard operation, the vapor enters the upper shell and passes down through the successive sections over the banks of tubes through which water, oil, or other circulating liquid is flowing. Used as a reflux or partial condenser, the vapor enters the bottom vapor connection, passing upward through the vapor inlet, and the lighter fractions leaving the upper outlet.

A still further arrangement obtains a different "cut" or "fractionation" from each section. The lower vapor connection of each section can be offset to the side of the shell, and the distillate can be drained from the basin thus formed in the vapor space. Besides flexibility of arrangement, flexibility of capacity is also obtained by adding as many sections as desired.

This steel shell condenser is quite compact, very rugged, and can easily be transported and assembled. Special features of construction cited provide easy cleaning and inspection without disconnecting water piping, and the use of rolled steel tube sheets prevents cracked plates or leaky tubes.

CONSTRUCT BIG PUMP FOR SPECIAL ORDER

One of the largest oil pumps ever constructed is the product of the Axelson Machine Co., Los Angeles. It has 6-inch liners, and is huge in comparison with the regulation 2-inch, 2½-inch and 3-inch models ordinarily used.

Several of these large pumps were made on a special order recently for a foreign producing company. They are used, it is said, to best advantage in oil wells which make a large amount of water, thus draining the confined areas and reducing the water in a field, allowing an increased production of oil.

COMPRESSED AIR BOOKLET

The tremendous importance of compressed air as an industrial factor is the feature of a new booklet issued by the Ingersoll-Rand Co., New York City, entitled, "100 and 1 Ways to Save Money With Portable Air Power." The attractive publication which has over 100 illustrations scattered through its 72 pages, is surprising in its enumeration of the many uses of compressed air. Portable air compressors are described in full in their relation to the use of compressed air and many of the air tools and labor aiding devices are pictured and described also. Cost data comparing hand versus machine methods are given where available.

HANDBOOK DESCRIBES DIESEL DEVELOPMENT

A history of the development of the Diesel engine from the time of the manufacture of the first one by Doctor Rudolph Diesel in 1897 to the present time is given in one of the most exhaustive recent engineering handbooks published by the Busch-Sulzer Bros.-Diesel Engine Co. of St. Louis, Mo. The Sulzer Bros. of Winterthur, Switzerland, were among the first to take up the Diesel engine in Europe. Adolphus Busch, of St. Louis, purchased the rights to Doctor Diesel's patents in the United States, its possessions and Canada, and the first American Diesel was completed at his St. Louis plant in September, 1898. The Busch-Sulzer Bros.-Diesel Engine Co. was formed in 1911 when the Sulzer Bros. became interested with Mr. Busch in the American factory.

"The Diesel engine is an internal combustion engine which utilizes, directly in its cylinder, any heavy liquid fuel, ranging from kerosene to tar," is the first statement in a discussion of the Diesel principle. The book continues with the assertion that the Diesel engine requires neither carburetors nor ignition system and describes in full the method of construction and operation of Diesel engines. It contains numerous illustrations, charts and drawings. It gives an interesting comparison of the efficiencies of various types of power plants. The economies in the operation of Diesel engines are set forth clearly and the details of the construction of the Busch-Sulzer Bros. engines are pictured and described. The various types and sizes of engines made by this company are described and their uses are shown.

PAINTING STORAGE TANKS

The uses of Bitulumin, the aluminum finish paint with the Biturine base, is described in a leaflet published recently by Hill, Hubbell & Co., of San Francisco. This aluminum finish paint was designed primarily for painting steel oil storage tanks. It is said to afford excellent protection for the steel surface and reduce evaporation losses, due to its efficiency as a deflector of solar heat. The manufacturers claim for it that it is successful in withstanding temperatures up to 800 degree Fahrenheit without discoloration and that it covers black or any other old color in one coat. It may be brushed or sprayed, covering 400 to 500 square feet per gallon.

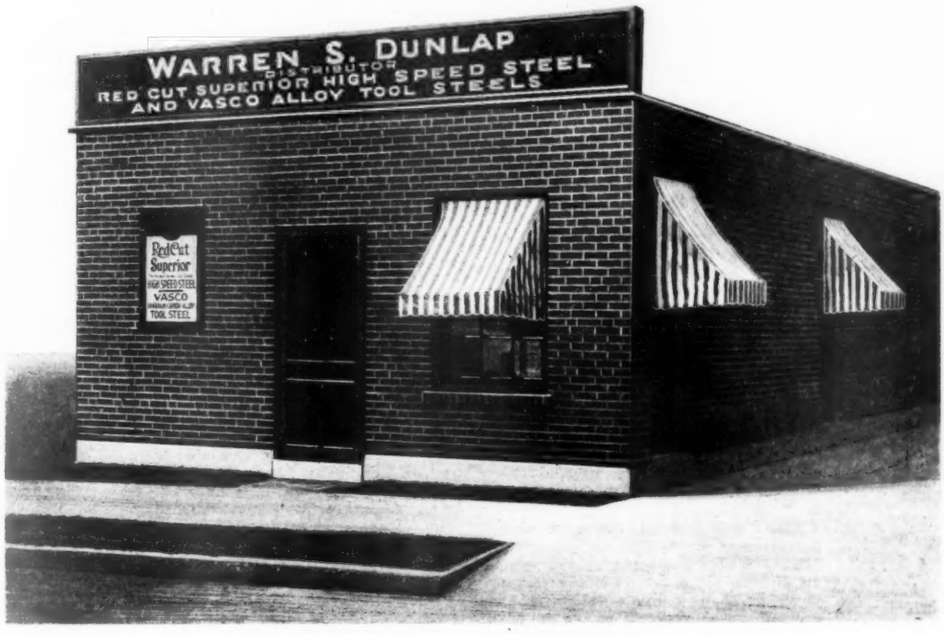
PYROMETER BULLETIN

The Bristol Co., of Waterbury, Conn. has published Bulletin No. 330 describing that concern's new indicating high resistance pyrometer, Model 420. This new pyrometer is an improvement over any previous model and is an important addition to the company's pyrometer line. Chief among the distinctive features of this new pyrometer are the following: Wide scale, easy to read; high resistance movement, extremely sensitive; calibration is permanent, automatic cold-end compensator.

SEPARATOR DESCRIBED

The Smith oil and gas separator, designed by T. K. Smith, president of the Chestnut & Smith Corp., Tulsa, is described fully in a recent pamphlet issued by the Smith Separator Co., of Tulsa, makers of the separator. Its simplicity of construction makes the Smith separator easy to install and it can be operated with or without pressure. It is made in several types ranging from a capacity of 5,000 barrels of oil and 10,000,000 feet of gas to 500 bbls. of oil and 1,000,000 feet of gas.

Vasco Tool Steels Are Especially Adapted to The Requirements of The Oil Field Tool Manufacturer



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"Red Cut Cobalt" is unexcelled for turning joints on both roughing and finishing operations and is a revelation when used for threading these same joints.

"Red Cut Superior" is nationally known as a first quality high speed and is now in use as a general purpose steel in the largest shops producing oil field tools in the Mid-Continent Field.

In order that our friends and customers located in the west and southwest may not be handicapped by having to obtain their supplies of "Red Cut Superior" and "Red Cut Cobalt" from the east we have opened a new warehouse in St. Louis, the natural gateway to the great oil fields, and all sizes and standard shapes may be obtained therefrom on short notice.

This warehouse stock is not limited to our high speed steels but includes a full range of sizes in Vasco Chrome-Vanadium for chisels of the first grade, carbon steels in several grades and in all sizes and shapes, in other words our oil field service is complete, courteous and fast.

Our catalogue will be mailed gladly to any one who feels the need of more production at less cost and who demand what they pay for—real satisfying service.

In order that your correspondence and orders may receive prompt attention we suggest that you address them to the St. Louis warehouse.

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NATURAL GAS DEVELOPMENTS

HIGH COST OF HELIUM SUGGESTS NOVEL IDEA

Chemical research, by inventing a way to block escape of entrained moisture, has eliminated heavy losses of lifting gas in airships during extended flights, it is announced by the American Chemical Society. This development is described in a paper prepared for the society by Robert F. Kohr and Lucinthia Butler of the United States Bureau of Standards. The method employed is the condensation of water from engine exhaust gas.

"Extended use of gas-filled airships by the United States Army Air Service," says the description, "has emphasized the necessity of developing some means of compensation for the loss of weight due to fuel consumption during flight, in order that excessive waste of lifting gas may be avoided.

"'Valving' or releasing lifting gas in order to maintain static equilibrium is in any case extremely wasteful, and must be avoided if helium gas is to be used.

"The exhaust from a gasoline engine contains more than a pound of water per pound of gasoline burned, owing to the combination of hydrogen in the fuel with the oxygen of the air. An apparatus has been devised to condense a large part of that water, thus making it possible continually to compensate during flight for the weight of fuel burned.

"The apparatus weighs about 1.5 pounds per horse power of the engine served, and this weight can be wholly compensated for by a corresponding decrease in the weight of ballast previously carried."

The work on which the American Chemical Society's paper is based was done at the request of the United States Army Air Service by the Bureau of Standards.

"It was occasioned largely by the proposed use of helium as a lifting gas in lighter-than-air craft," it was explained. "On account of its noncombustible nature, helium is exceedingly important from the military standpoint, and is in fact a virtual military monopoly, inasmuch as nearly all the known world supply is found in this country.

"There has always been a great loss of lifting gas in airships during extended flights, due to the necessity of maintaining static equilibrium by valving gas when the total load had been decreased by consumption of fuel. This waste might be tolerated when hydrogen is used, but must be nearly eliminated before a gas so rare and expensive as helium can be put into general use.

"The problem, then, is that of maintaining a constant total load in order that change of load may not have to be compensated for by change of lift. To this end a survey of the possible means was made and resulted in the adoption of the method indicated—the condensation of water from engine exhaust gas.

"The exhaust from a gasoline engine contains about 1.4 pounds of water per pound of fuel burned, and to compensate wholly for the loss of fuel weight it is only necessary to cool the exhaust products sufficiently and separate and collect the condensed water.

"Various cooling systems were considered, but the method finally adopted was that of direct air cooling by passing the exhaust gas through long, thin-walled pipes, whose outer surfaces were exposed to the air flowing past the ship. In order to prevent the escape of entrained moisture, the gas leaving the cooling tubes was passed through a baffle type separator.

"Two condensers of this type were designed, built and subjected to ground test. The first of these was later installed on the Army airship D-3 and given a flying test of over 50 hours. The performance closely approximated that expected from theoretical considerations. Similar apparatus is to be used as service equipment on all new army ships intended for long-distance flying."

BURBANK GAS LINE TO MYERS JUNCTION

The natural gas division of the Empire companies has started construction of a 10-inch and 12-inch gas pipe line between the Burbank Field and Myers junction, about 9 miles northwest of Pawhuska, where it will intersect existing lines owned by subsidiary companies. The new line will be approximately 20 miles long and of welded construction and is to be completed in 45 days.

This new branch of the Empire system will have an approximate daily capacity of 17,000,000 feet and will be connected to existing lines in such a way that will add materially to their flexibility. Through this new line gas may be transported from the Burbank area east through the Caney and Higheart compressor stations for delivery to either the Kansas Natural or Quapaw trunk lines, or, if additional gas is needed in the towns served by the Wichita branch through Cambridge station gas which originates in the Creek County and Osage districts can be diverted through this new line.

SWARTZ PRESSURE DROPS

SHREVEPORT, La., Oct. 4.—A recent regauging of the Swartz gas area in the Monroe Field, conducted by the minerals division of the State Conservation department, shows a drop of 25 per cent in pressure since April. The average rock pressure now averages 333 pounds and since it is a department ruling that no well can be used for the manufacture of carbon with a pressure of less than 200 pounds, it is easily seen that gradual abandonment of this section of the field for anything but fuel purposes is inevitable.

NEW GAS COMPANY

MUSKOGEE, Okla., Oct. 4.—The Mayes County Pipe Line Co. has been formed by W. T. Gould, M. C. Hadley, and C. D. Mitchell of Pryor, and is now building a gas pipe line from Pryor to Choteau and to Section 27-18-19, where it will connect with a gas well recently completed by Campbell-Dustin-Metzgar & Foltz. The company will supply Choteau and Pryor with domestic gas. Owners of the gas well, the latter located south of Maizie, are preparing to drill another gas test. Their first well gauged slightly over 1,000,000 feet.

TOWN TO GET GAS

FORT WORTH, Tex., Oct. 6.—Gas produced in the Nocona Field of Montague County, Texas, is soon to be utilized for domestic consumption in towns near the field. A franchise at Nocona was granted recently to Harry F. Mitchell and associates to supply the town with gas. George W. Power is arranging to pipe gas into Hico, Texas from the Mexia Field.

GAS SUPPLY FOR TERRAL

WAURIKA, Okla., Oct. 4.—An unanimous vote was cast recently at Terral in favor of the town officials granting a natural gas franchise to W. W. Ely and associates of Fort Worth. These men recently were granted a franchise in Waurika. They have put up a bond of $10,000 as a guarantee that gas will be distributed here within one year from September 9. Gas is to be piped from wells in Jefferson County near Ketchum Bluff.

CROMWELL SAND PROBLEM CAUSES A CONTROVERSY

TULSA, Okla., Oct. 6.—One of the most puzzling problems presented to the oil industry and to the Bureau of Mines and the Corporation Commission in Oklahoma has arisen in the Cromwell Pool in Seminole County. It has to do in the main with the question of whether one sand and one only produces the oil and gas flowing from 1,000 and 2,500-bbl. wells. The Roxana Petroleum Corp. will attempt to answer the question. The corporation commission has held that certain conservation rules may, in some measure at least, be disregarded.

The question arose when oil operators and the commission endeavored to find a way to prevent wastage of gas daily into the tens of millions of cubic feet from the numerous producing wells in the Cromwell Pool. The waste was called to the attention of the authorities when it was found it reduced rock pressure in one section of the pool to such an extent that wells that had been flowing 4,000 bbls. daily shortly were flowing but 500 bbls. These wells are on the opposite side of the pool from wells that have smaller oil production and higher gas production.

The latter wells are drilled into a producing sand that has an average thickness of 122 feet. The upper part contains gas principally and the lower part oil principally. In order to get the oil to the surface operators have had to let the gas out with an unrestricted flow. John Whayne, conservation officer of the Holdenville district, estimates the daily waste of gas in the Cromwell Pool lately has been 600,000,000 feet. The Bureau of Mines has estimated that producing wells recently had a total flow of 720,000,000 feet.

Two wells in the heavy gas section of the pool attracted the attention of the conservation officer. One, the first drilled in that territory, belongs to the Roxana Petroleum Corp. and the other to the Burk Greis Oil Co. They had been permitted to flow at capacity with huge gas waste. An offset to each was drilled by the Carter Oil Co. The sand has been penetrated 44 feet into the gas and a little way into the oil when Whayne ordered drilling stopped. He forbade the Carter to complete the well to the depth of the others until it had arranged to set casing to the bottom of the gas sand so the gas could be conserved.

Then came the problem of where and how to set casing. The Carter Co. appealed to the corporation commission. Representatives of nearly all companies operating in the pool accompanied Carter representatives to the capitol to attend a conference with the commission. They were of one mind that there appeared to be no break in the 122-foot sand, no division mark between the gas area and the oil area, no shale or lime streak on which casing could be landed. A representative of the Bureau of Mines said the bureau had not yet had a log or a core of a well in that section in order to determine the characteristics of the producing formation.

"One company," said an oil man, "has spent $15,000 trying to find out if there is a break in the sand and has failed."

Operators faced the probability of being ordered to close in producing wells until arrangements were made to conserve the gas. They faced the probability of the commission ordering all wells drilled to the producing sand with rotary tools and completed with cable tools. They faced the probability of being fined for violating gas conservation rules of the State. And they faced a situation of operators in one section of the pool losing probably millions of barrels of oil because dissipated gas was decreasing the flow.

The Roxana agreed to make another effort to solve the sand problem. The Carter was permitted to drill its well to the necessary depth and meantime the Bureau of Mines and the State Conservation Bureau will continue to study what to do.

SURVEY FOR GAS LINE REFUGIO TO HOUSTON

HOUSTON, Tex., Oct. 2.—A survey of the southwest gas belt is being made by an expert of the Lone Star Gas Co. for the Seagraves interests of Galveston with a view to laying a line from Refugio County to Houston and Galveston.

H. C. Bell, chief supervisor of the Oil and Gas Division of the State Railroad Commission, has been looking over the gas belt between White Point, near Corpus Christi, northwestward to McMullen and Live Oak Counties. The area is 150 miles long and 75 miles wide, in which a number of big gassers have been developed, but they are shut in with no market for the product. In some cases the wells flowed wild with no effort to control them until the holes bridged and shut off the gas. The chief supervisor plans to call a meeting of operators interested to formulate special rules for the conservation of the gas and also to provide protection while drilling.

CANADIAN CONSUMERS FORM ASSOCIATION

CHATHAM, Ont., Oct. 4.—At a meeting held at Chatham, representatives of a number of gas consuming municipalities in southwestern Ontario reorganized the Municipal Gas Consumers Association. The towns include Windsor, Dover, Ridgetown, Rochester, Belle River, Sandwich East, Raleigh, and Moore. It is not certain, however, whether all the municipalities represented on the executive will adhere to the association, while a number of municipalities have made independent rate agreements with the Union Natural Gas Co. The association is planning to appeal from the rate decisions of the Ontario Natural Gas Board of reference on a stated case in which the validity of the legislation appointing the board will be challenged, or, in the alternative, the rates fixed will be appealed.

MAY USE WELLINGTON GAS

CASPER, Wyo., Oct. 4.—In the opinion of petroleum engineers who have studied the Wellington structure there is not enough gas in that dome to warrant a supply for the City of Denver, but as Cheyenne, Wyo., lies only about 25 miles to the north, the gas is considered sufficient to supply that city for a number of years and a pipe line is now being considered to take the Wellington gas to Cheyenne for domestic and power uses. According to the engineers the present supply, as indicated by the wells drilled and the contours, would not last the city of Denver more than three years at the outside. Denver's population is about 250,000 and Cheyenne has about 22,000.

GAS CHOKED OFF

Plateau and Texas & Pacific's wild gasser in southern Live Oak County, Texas, has finally choked off after making 50,000,000 feet of gas for nearly a month and flooding the Nueces River with from 10,000 to 20,000 bbls. daily of black sulphur water.

PLAN GAS RATE RAISE

PITTSBURGH, Pa., Oct. 4.—T. W. Phillips Gas & Oil Co., which serves several thousand homes in Allegheny County, has filed a tariff with the Public Service Commission at Harrisburg increasing the gas rate of domestic consumers from 47 to 52 cents net per 1,000 feet.

Carter Oil Co. Salt Creek, Wyoming. Home camp.

You probably know these men—they know a lot about Wire Lines. Let them tell you their experience with Williamsport.

Left to right: Fred Richardson, Supt. of Tools. Bill Horne, Driller. Herk Woodzell, Whse. Foreman, Bart Myers, Supt. of Prod. F. H. Smith, Salesman.

Buying Wire Lines of unknown grade for Oil drilling is looked upon by practically all of the careful drillers today as a dangerous practice.

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Williamsport has changed all of this uncertainty—and now where Williamsport Wire Lines are used drilling is being done with a positive, definite knowledge of the grade of line the driller is using.

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Why take chances with lines of unknown grade. Most drillers are safeguarding their operation with Williamsport.

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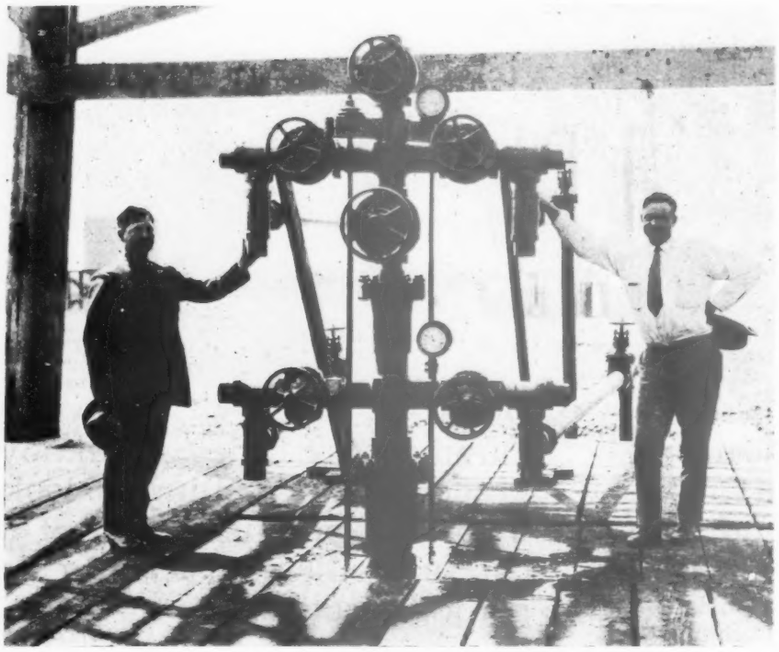


Kerotest Cast Steel Valves and Fittings

"Deer Horn" setting on Well of Shell Co. of Dominguez Hill.

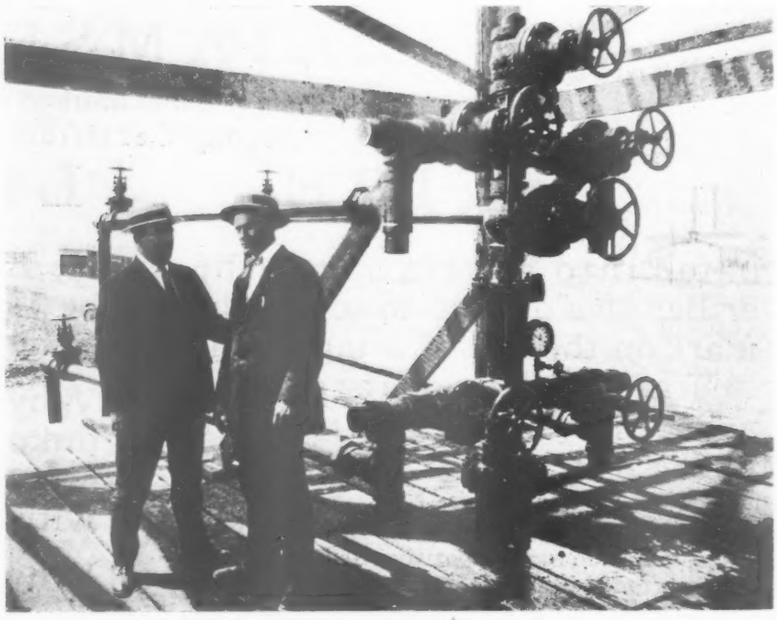
—designed by "Happy" Yowell, general field superintendent for Southern California district of Shell Co. Note KEROTEST Valves used in this setting.

"Happy," smiling as usual, is the chap on the right. And on the left we have the well-known Charlie White, field superintendent for Dominguez-Athens-Rosecrans district.

Says "Happy:"

"Better be safe than sorry. The valves on this setting are KEROTEST."

Here we have Harry Potts (left), factory representative, telling Joe Swatton (right) manager of field stores for Grinnell Co. of the Pacific, the story about the salesman and the Pullman porter. Joe is trying his best to smile. He has heard the story before.



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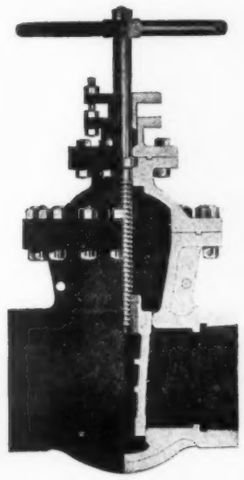
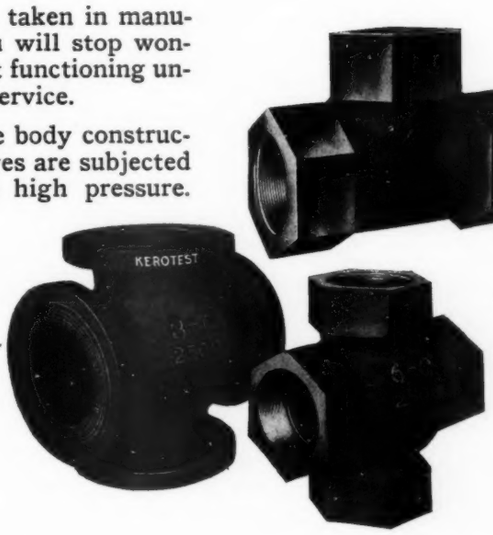
KEROTEST CAST STEEL VALVES AND FITTINGS

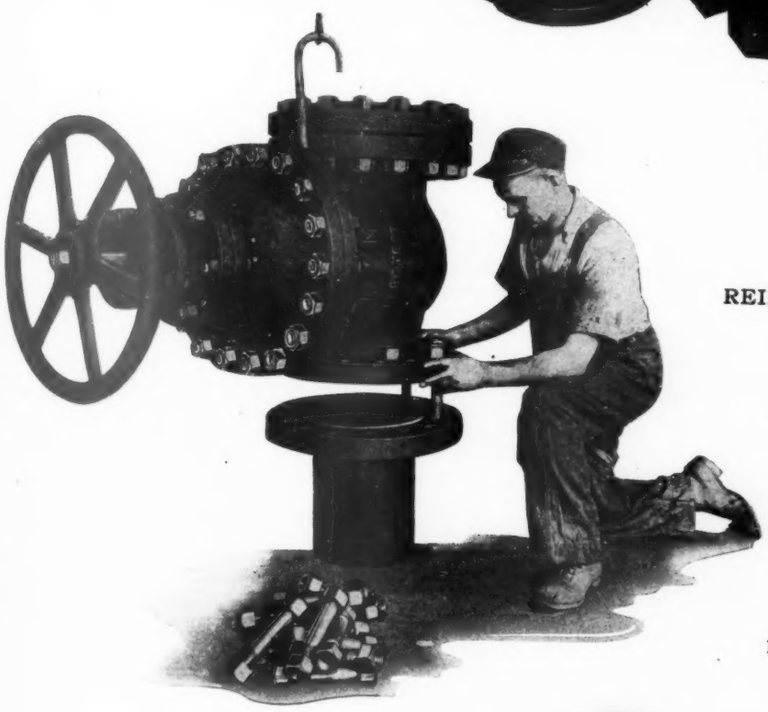


When you consider the great care taken in manufacturing KEROTEST Valves you will stop wondering at their strength and efficient functioning under the severe stresses of oil field service.

Tough Ilmenite steel is used in the body construction. After completion, all the valves are subjected to a 24-hour kerosene test under high pressure. Before shipment every valve and fitting is carefully examined by a disinterested inspection agency for any possible weakness or flaw.

No matter how "wild" your well is, KEROTEST Valves will help you subdue it.





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MEN KNOWN IN OILDOM

Orel P. Keeney

The recently elected president of the National Petroleum Association, Orel P. Keeney, manager of the bulk sales and the paraffin and lubricating oil departments of the Tide Water Oil Co., president of the Tide Water Oil Co. of Massachusetts and a director of the Tide Water Sales Co., subsidiaries of the Tide Water Oil Co., has spent 12 years in the service of that concern. He is the son of G. A. Keeney, who was associated with the Tide Water Oil Co. during the early days of its history in western Pennsylvania.

The new leader of the National Petroleum Association was born in Elizabeth, N. J., in 1888. He graduated from Princeton University after completing his secondary work and started in at the bottom with the Tide Water Oil Co. after receiving his degree. His present high position stands as a record of his energy and ability.

During the World War Mr. Keeney was placed in charge of the division of lubricants, oil division, United States Fuel Administration, receiving wide recognition for his efforts in that capacity. In Mr. Keeney, the National Petroleum Association has a young and capable leader.

PERSONAL PARAGRAPHS

Parry Scranton has returned to Houston, Tex., from a trip to New York City.

* * *

S. C. Lowe, Houston geologist, has returned from a trip through the southwestern counties of Texas.

* * *

W. R. Weeks, who has a number of interests in the Wyoming fields, has moved from Lander, Wyo., to Denver.

* * *

R. A. Josey, president of the Josey Oil Company, Tulsa, returned last week from an extended visit to Eastern cities.

* * *

Dr. Edward Bloesch, geologist, has returned to Tulsa from Colorado, where he was engaged during the summer.

* * *

E. F. Griswold of the Griswold Oil Corporation, Wichita Falls, Tex., has returned from a business trip to Washington, D. C., and New York.

* * *

J. W. McCullough, general manager of the Independent Oil & Gas Company, Okmulgee, Okla., returned recently from a vacation trip to Colorado.

* * *

Edgar M. Carver, representing the Dodge Manufacturing Company. Mishawaka, Ind., was calling on supply men and users of shafting in Casper, Wyo., last week.

* * *

B. H. Carnahan, chief gauger for the United States Bureau of Mines in the Rocky Mountain district, with headquarters at Denver, Colo., has been making tests in the Salt Creek Field Wyoming during the past week.

T. B. Hoffer, of Fort Worth, Tex., president of the Hoffer Oil Corporation, one of the producers in the Cromwell Field, stopped in Tulsa recently for a short visit.

* * *

J. C. McCue, assistant manager of the production department of The Texas Company, is at Battle Creek, Mich., for a few days. He is accompanied by his wife.

* * *

Erle P. Halliburton, president of Halliburton Oil Well Cementing Company, Duncan, Okla., has returned from an extended business trip to Los Angeles, Cal.

* * *

R. T. Musser, formerly in charge of the Dallas, Tex., office for the General Tank Car Corporation, has been put in charge of the company's new office at Los Angeles.

* * *

William Russell, purchasing agent for the Mammoth Oil Company, at Casper, Wyo., has been transferred to the New York offices of the Sinclair Consolidated Oil Corporation.

* * *

Paul A. Ehrhardt, of Straussbourg, France, has been in the Coastal regions studying the rotary method of drilling. He is accompanied by Andre Pellissier, mechanical engineer.

* * *

Walter M. Lamb, formerly purchasing agent for the Red Bank Oil Company, Tulsa, moved to Independence, Kans., recently where he is connected with the Lewalt Drilling Company.

* * *

H. R. Gruber, oil country representative for the Williamsport Wire Rope Company, with offices in Tulsa, has been calling on the trade in the Rocky Mountain fields during the past week.

* * *

A. L. Jones, district manager, and B. C. Wheatlake, sales manager for the General Electric Company, with offices in Denver, Colo., were calling on the oil field trade in Casper last week.

* * *

C. E. Hanratty, foreman for the Gulf Pipe Line Company at Goose Creek, Tex., has returned from a trip to Parker, Pa., his former home. His family spent the summer there with relatives.

* * *

E. H. Woods, geologist, of Los Angeles, Cal., has accepted a position in the geological department of The Texas Company at Wichita Falls, Tex., and will enter upon his new duties this week.

* * *

Frank Coast, a former Oil City, Pa., boy, now located in Houston, Tex., has been scouting the Big Lake Field in Reagan County. He is connected with the Texon Oil & Land Company at Big Lake, Tex.

* * *

Frank M. Brewster, petroleum engineer with the United States Bureau of Mines, arrived in Ardmore, Okla., last week to take charge of that office, having been transferred from the bureau's Taft, Cal., office.

* * *

W. H. Gaither, of Houston, representing the National Transit Pump & Machine Company in Texas and Louisiana, has returned from a trip to Fort Worth and the Big Lake Oil Field in western Texas.

* * *

C. D. Keen, of Keen & Wolf Oil Company, Shreveport, La., was a visitor last week to the Houston refinery and sales office of the company. Mr. Keen returned recently from a vacation trip to Colorado.

* * *

T. W. Larkin, covering the Houston sales territory for the Galtex, the new trade name for the Galena-Signal Oil Company of Texas, has returned from a two weeks vacation spent in the East Texas piney woods.

* * *

J. W. Moran of Wichita Falls, Tex., for the past two years in the general office of The Texas Company there, has resigned to take a position with the Arro Oil & Refining Company at Lewistown, Mont.

* * *

V. H. Martin, independent oil operator living in Winfield, Kans., a former Tulsa resident, returned to Tulsa recently to attend the funeral services for Mrs. Lynn R. Wallace of H. S. Gray of the Prairie Oil & Gas Company.

R. E. W. Foster, vice president of the Foster-Hoefer Corporation, Tulsa, is making an extensive trip through the oil fields of Colorado, Wyoming and Montana in the interests of his firm. He will be gone about four weeks.

* * *

E. A. Watts, president and general manager of the Miller Improved Gas Engine Company, Springfield, Ohio, who has been in Tulsa for several days, was called back to Springfield last week by the sudden death of his mother.

* * *

Ed Allen of Warren, Pa., has left for his home after spending several weeks in the Barren County, Kentucky, Field. Mr. Allen expects to go to Colorado in the near future to look over the new prospective field opened there.

* * *

J. A. Edwards, lubricating engineer, and Frank D. Brimm, avertising manager of the Marland Refining Company, Ponca City, Okla., were among the early arrivals in Tulsa for the International Petroleum Exposition and Congress.

* * *

A. J. Pfister, formerly with the Midco Gasoline Company and the Midco Petroleum Company as sales manager, recently joined the Bell Oil & Gas Company, Tulsa, as purchaser. He will also have charge of the sale of heavy oils.

* * *

C. E. Schoenfelt, superintendent of operations for the Marland Oil Company of Colorado, with headquarters at Denver, stopped in Casper, Wyo., recently on his way to Montana, where he was intending to look over some prospective properties.

* * *

Glenn Kahle, formerly vice president and general manager of the Humphreys Oil Co., who is now a drilling contractor with headquarters in Dallas, Tex., was in Tulsa last week on his way to the Cromwell Field, where he has several rotary strings.

* * *

H. H. Isaacs, who during the past six years has occupied the positions of refinery superintendent of construction of the General Petroleum Corporation, Los Angeles, Cal., has been appointed manager of the engineering department and will have full charge of all design and construction.

* * *

John Roberts and S. H. Harrison, valuation engineers in the income tax division of the internal revenue department, have arrived in Wichita Falls, Tex., and will devote some time in the oil fields to getting first hand information relative to depletion and other factors that tend to affect incomes.

* * *

E. E. Robbins, of the lubricator division of the McCord Radiator & Manufacturing Company, Detroit, Mich., was one of the first supply men on the grounds at the International Exposition and Congress last week. He has been busy looking after his equipment, which is installed on various engines.

* * *

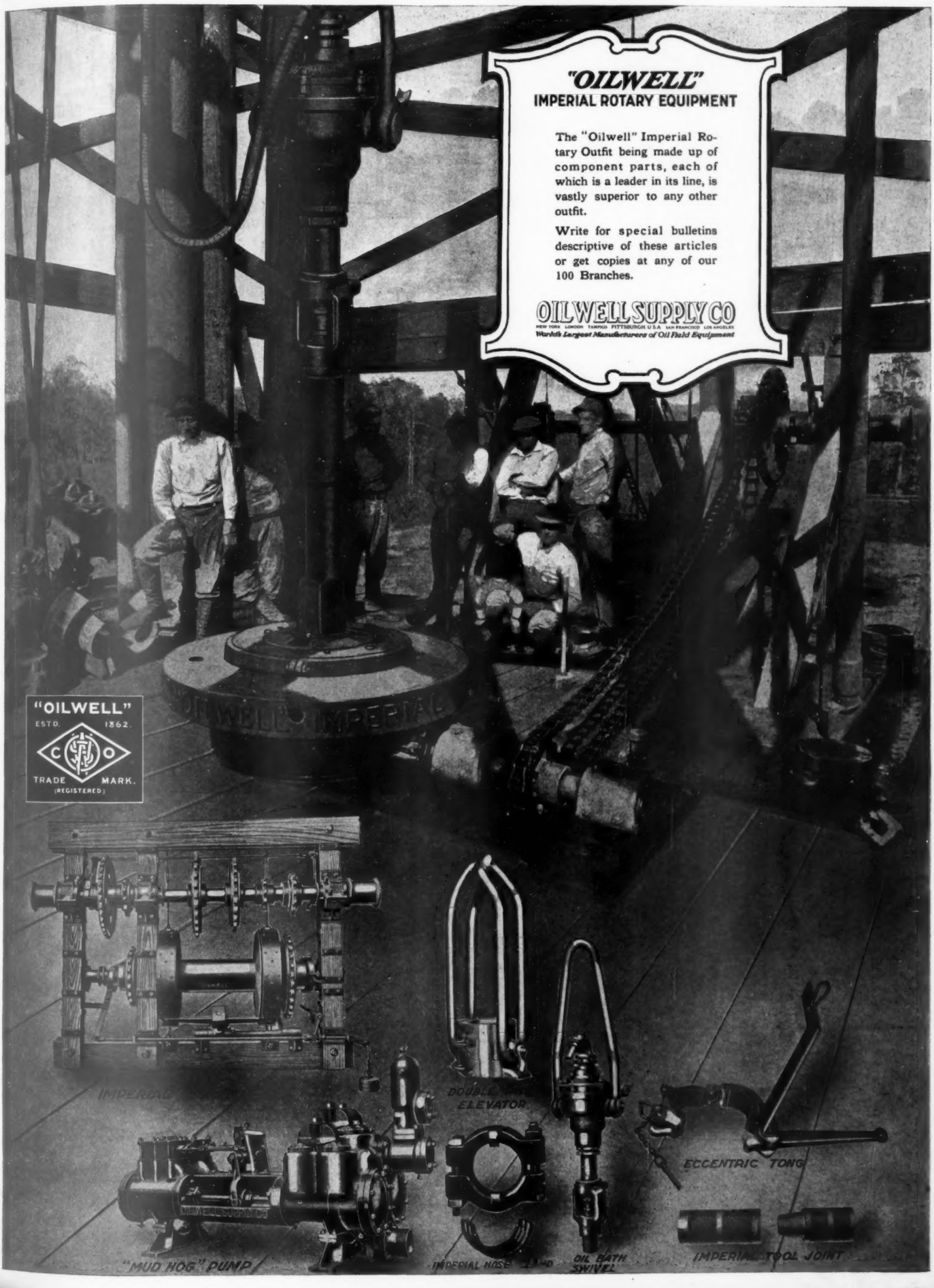
S. J. Dickey, for many years engineer of the refinery division, and later chief engineer of the General Petroleum Corporation, Los Angeles, Cal., has been relieved of all routine and managerial duties and appointed consulting engineer of the corporation. He will supervise technical policies and look after patent and research work.

* * *

Gerald L. Wendt, who has been connected with the engineering department of the Standard Oil Company of Indiana, with headquarters at the Whiting, Ind., plant of the company, has assumed duties as Dean of the School of Chemistry and Physics at Pennsylvania State College, State College, Pa. Mr. Wendt presented one of the papers at the recent meeting of the Petroleum Division of the American Chemical Society held at Ithica, N. Y.

* * *

Several changes have been made in the personnel of the Rocky Mountain offices of the United States Bureau of Mines, following the appointment of J. W. Steele as deputy supervisor at Casper, Wyo. John Alden, gas engineer, at Denver, Colo., has been transferred to the California division, becoming assistant to R. C. Patterson, deputy supervisor there who was sent out from the Casper office. J. B. Reeve has been transferred from Salt Creek, Wyo., station to the Washington offices. F. X. Swartzbeck, engineer at Winnett, Mont., has resigned.


"OILWELL"
IMPERIAL ROTARY EQUIPMENT
The "Oilwell" Imperial Rotary Outfit being made up of component parts, each of which is a leader in its line, is vastly superior to any other outfit.
Write for special bulletins descriptive of these articles or get copies at any of our 100 Branches.
OILWELL SUPPLY CO
NEW YORK LONDON TAMPICO PITTSBURGH U.S.A. SAN FRANCISCO LOS ANGELES
Worlds Largest Manufacturers of Oil Field Equipment
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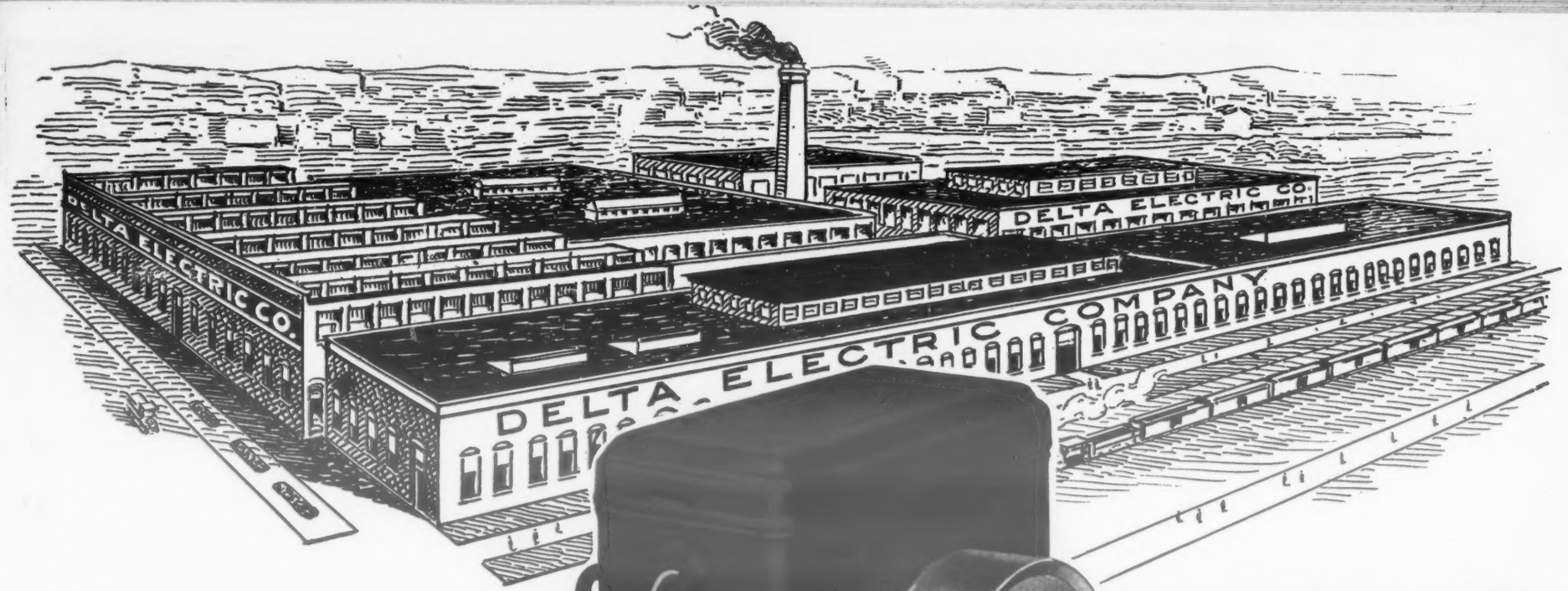
IMPERIAL TOOL JOINT



DELTA products embody the Quality of Excellence made possible by years of continued and successful manufacture of Electric Lighting Devices. The DELTA line embraces products on which we have concentrated and constantly improved for more than fifteen years. It has behind it the resources and experience which have accrued in that time. The word DELTA means GOOD light the world over.

Turn Midnight Into Midday

WITH A

DELTA

No. 10 HAND LANTERN

Next to Sunlight in Brilliancy, positively throws more and brighter light than any other lantern. Snap the safety switch and you have a continuous burning powerful white light hundreds of feet ahead.

Safe as daylight around oil, or in dangerous, dark corners. Flanged base prevents upsetting. Never a risk. Made of metal; lasts for years. Uses two ordinary No. 6 dry cells that last for five months to a year or longer. Can be carried over the arm or in the hand.

At your supply house or sent direct for

$2.75 COMPLETE LESS BATTERIES

Delta Electric Company

Factory and General Offices: 110 Delta Block, Marion, Ind.
Standard Makers of Electric Lanterns, Auto Spotlights, Motorcycle Spotlights, Bicycle Lamps, Radio Head-Phones, Flashlights and Flashlight Batteries

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Journal of Applied Psychology

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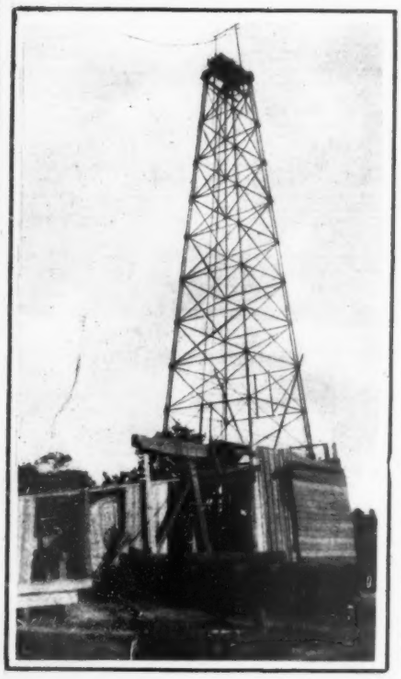
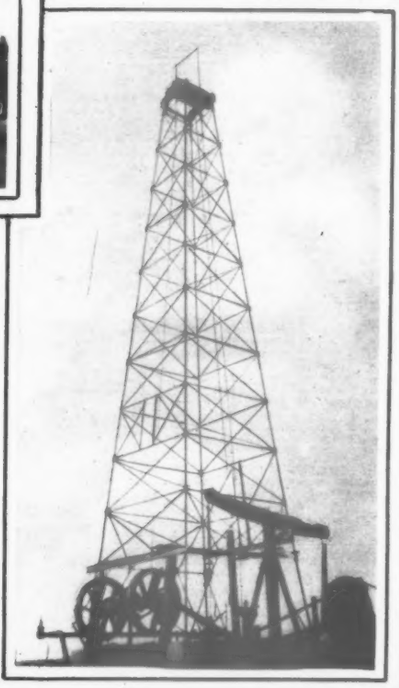
The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

Recent Glimpses of Oklahoma Fields

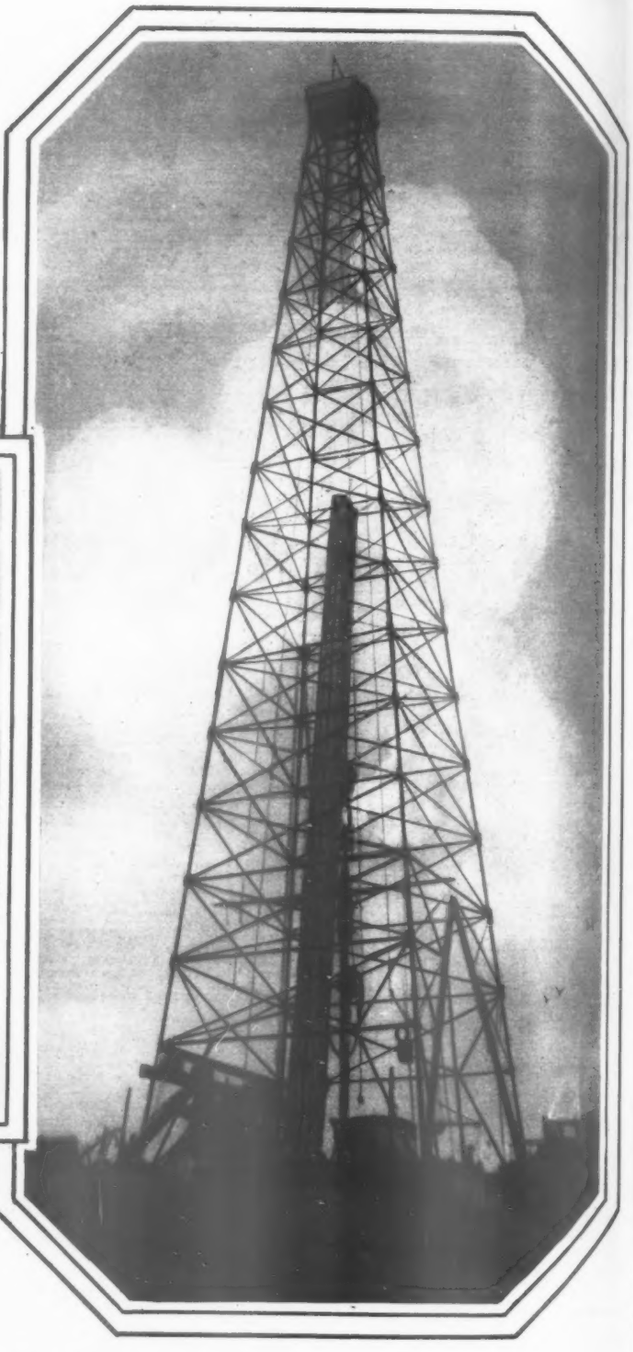


Before *and* After



Reinforcing Legs

for tubular steel derricks is a feature gaining steadily in favor. Above is seen such a derrick—a Moore 81-foot Cable Driller with regular 3" pipe legs, reinforced with a set of 4" pipe legs, which are used while drilling is going on. Derrick on right shows same derrick without reinforcing legs, after well is on production, used as a pumper. Besides the pipe, a special set of double clamps is all required for such reinforcing and these legs with clamps can, of course, be used for drilling an unlimited number of wells.



A Giant Traveler at Stroud

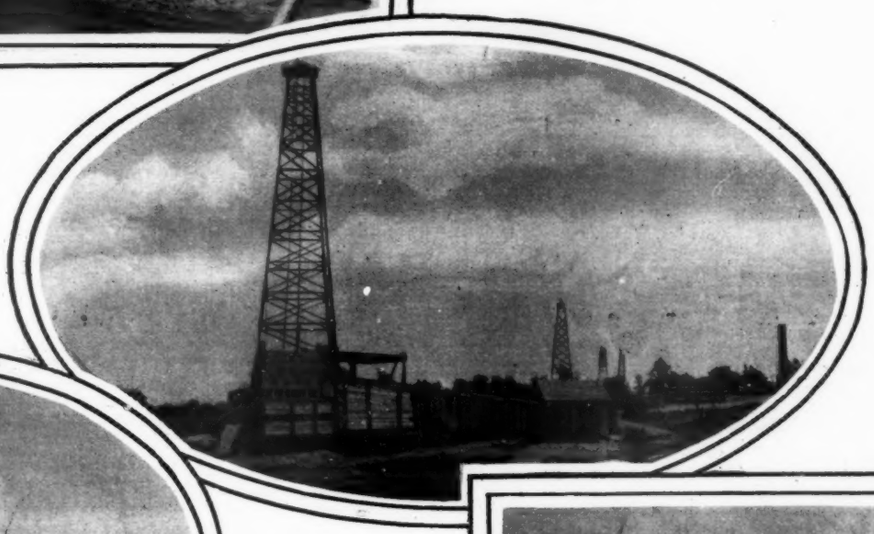
He recently arrived from Tonkawa, this 115-foot Moore giant. There he drilled a 3,180-foot hole, before being moved to Stroud. The camera man "got" him after the 8¼" casing had been cemented at 2,943 feet, the hole being drilled by rotary to this depth, after which a change is made to cable tools, for drilling down to the producing sands found between 4,100 and 4,200 feet. The derrick is of the combination rotary and cable tool type, perfected by Lee C. Moore & Co. (Aug. 8, 1924).

Oil and Gas Separators

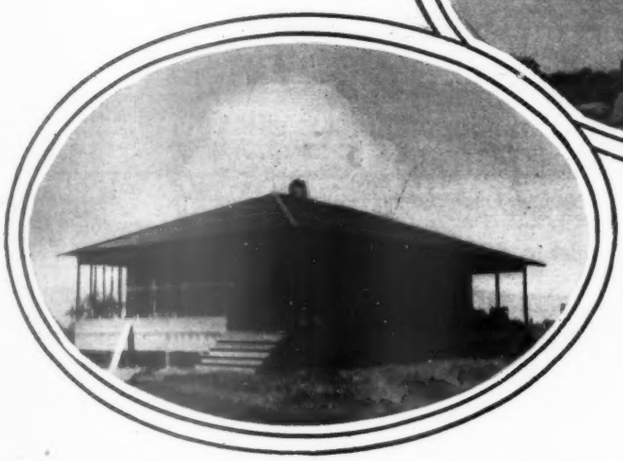
erected by Pure Oil Company at Cromwell, Okla. Moore derrick to right, drilling on No. 5 location, Replogle lease. (August, 1924).

Concrete Floors in Tonkawa

They sure are getting up-to-date in Tonkawa. Not content with concrete derrick corners, they finish up the job by making the floor, too, of cement. And why not? They are inexpensive, less slippery than wood and easily kept clean. Producing wells come high these days, and the protection-afforded by fireproof foundations, floor and derrick, adds little to the cost and may save the whole investment. In the foreground may be seen several of these concrete floored steel derricks — all 67-foot Moore Steel Pumpers, belonging to the Gypsy Oil Company.



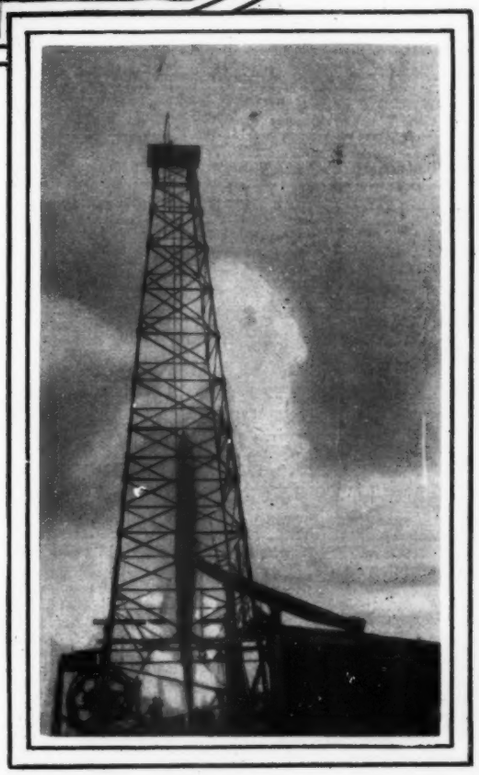
Right. Location 5, 7 and 6 on Pure Oil Co. Replogle Lease, Cromwell. Drilling with Moore Steel Cable Tool Derricks.



Left. Warehouse of Pure Oil Co. on Replogle Lease, Cromwell.

Looking 'em Over at Cromwell

Here are three "snaps" taken by the "officious" photographer in the Cromwell field, where Amerada, Burke Greis, Gypsy, Superior, and other Oil operators, are busily drilling and pumping with a whole little army of Moore Steel derricks.



Making 2100 Barrels

of oil and 60 million feet of gas, at a depth of 3,465 feet with a Moore 84-foot driller, on Pure Oil Company Cromwell lease, Okla. (Aug. 1, 1924)

MOORE
TUBULAR STEEL
DERRICKS

LEE C. MOORE & COMPANY, INC., PITTSBURGH, PA.

THE HORTONSPHERE
AN IMPROVED ELEVATED PRESSURE TANK
THE ORIGINAL ELEVATED PRESSURE TANK FOR CASINGHEAD GASOLINE
THE HORTON TRUSS STAIRWAY
7 RING 80
5 RING 55
HORTONWELDED ROOF AND BOTTOM

Workmanship Counts!

YOU know it—because you're trying to improve the quality of work done by your own employes.

Remember the scrap heaps at your refinery or in the field?

You have seen there the ruins of equipment that didn't have the necessary workmanship in it.

Workmanship is built in—not put in.

Organizations build—individual stars clutter up.

Our organization knows and is not content with less than *the best workmanship.*

The best workmanship is necessary to give you *the service you demand from your tanks.*

The keenest buyers in the industry know this is so.

And you know it—but if we haven't proved it to you come in and see us.

We'll show you some real workmanship.

Booths 26 and 27
Texas Building
at the Exposition

CHICAGO BRIDGE AND IRON WORKS

The Oil Industry Cannot Stand Still

In most industries the evolution of improvements is a slow process. In the oil industry there is a constant procession of innovations. The oil man who sticks to out-of-date methods is hopelessly handicapped.

Hence the universal interest in the International Petroleum Exposition, which has assembled at the Oil Capital the very latest exhibits of progress. The big oil and gas show at Tulsa is a clearing house for technical information to which practical oil men have looked forward as to a school of instruction—a veritable institute of technology devoted to petroleum.

Here are exhibited in concrete form the results of the labors of the inventive minds of the industry, the fruits of practical experience in the oil fields and the manufacturing plants materialized in improvements of old methods and equipment or in new and revolutionary appliances and processes.

For the oil industry cannot stand still. It has seen within two decades its whole purpose and products made over by the development of a market outside itself that put a demand upon it which has constantly kept it on its toes to meet.

Its chief product 20 years ago has been relegated to a subordinate position, while the waste material of those days has become its most valuable product. And the evolution is only beginning.

Today the motor car dominates, but already the demand for fuel oil for the railroads and steamships of the world is exceeding anything dreamed of a few years back. The popular interest in oil for domestic heating, only awakened, promises a demand for other products that cannot be calculated.

The development of refining, of new processes, of blending, of natural gasoline, continues apace, based largely upon the need for gasoline, but will increasingly have to take into account the coming competitive market for other fractions.

At the same time there will be thrown upon the producing end of the industry vastly enlarged demand for the crude material. Efficient though the production branch has proved, too efficient indeed for its own good in recent years, it has continually felt the need for betterment as new methods or appliances were suggested by experience or demanded by new problems such as deeper drilling.

Considering the vast proportion of oil not recovered by existing methods, the needs of the future will necessitate the discovery and development of means for further recovery if the world's uses for oil are to be supplied.

Happily the sense of unity of purpose between the manufacturers of oil equipment and those who use it has always operated to keep the industry abreast of its problems. Working together, the men who do the work and the men who make the tools, have cooperated to secure the highest efficiency.

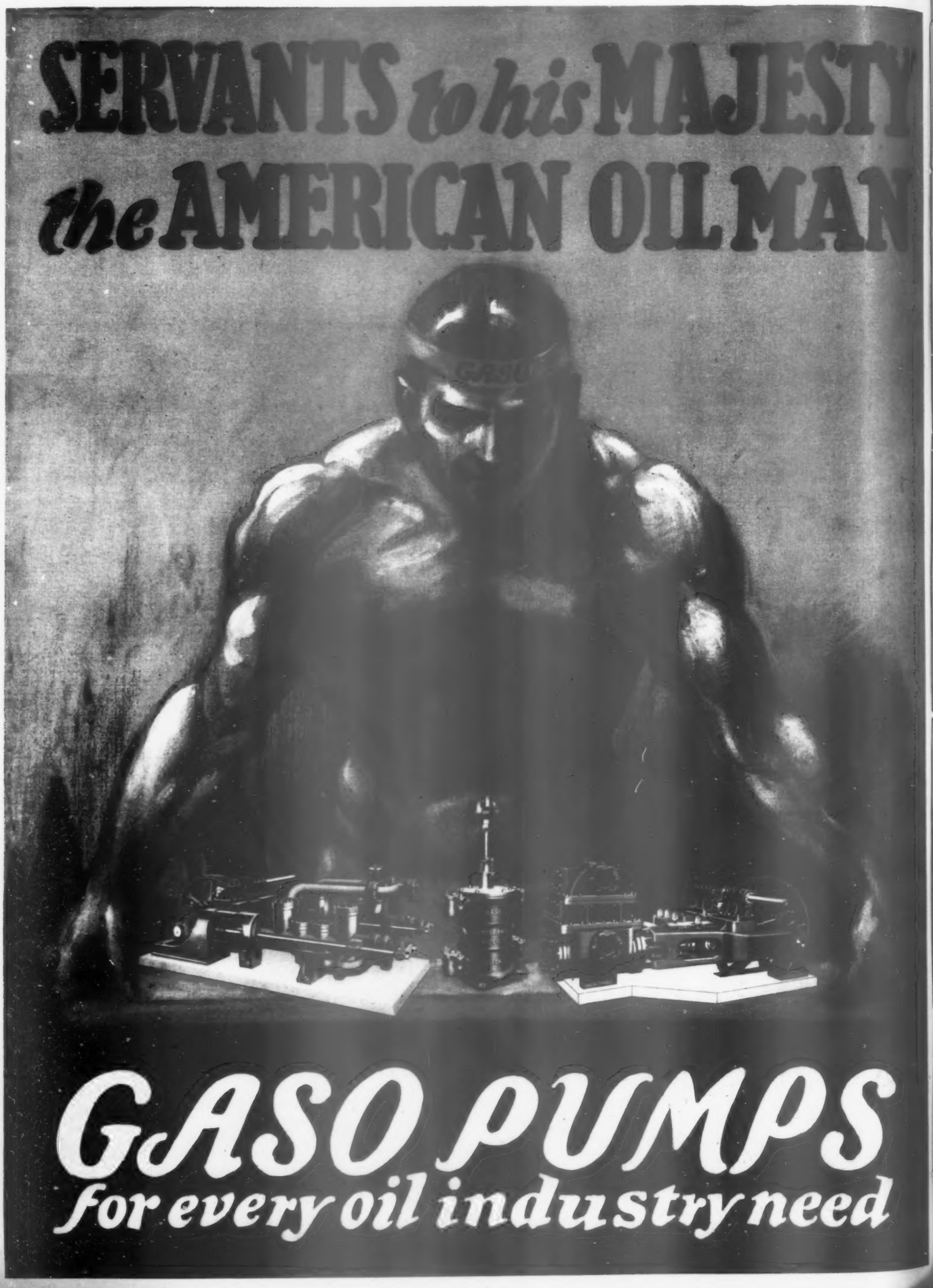
What practical experience has demonstrated or technical theory suggested has been welded into oil country equipment as in no other industry, thanks to this team work between the makers and the users.

Is there not in the splendid results thus obtained by whole-souled cooperation a lesson for the oil industry as a whole and for those related industries which depend upon oil for motive power?

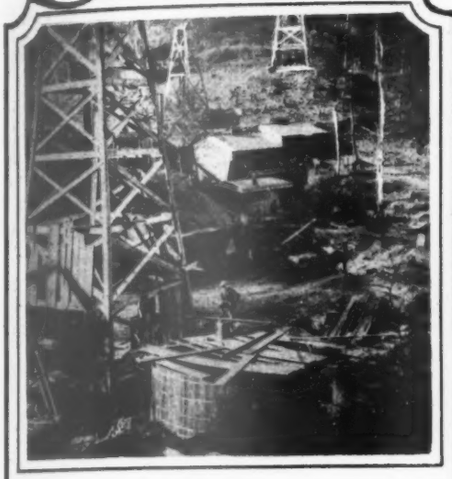
What might not be accomplished by equal cooperation for common advantage between the producing, refining and marketing divisions of the oil industry, and between the petroleum and the automobile industries, the oil-burning industries, the railroads and shipping industries, and the oil-heating manufacturers.

A beginning has been made in such cooperation, but it has been chiefly tentative. Tackled with the same energy and singleness of purpose shown by the cooperation of oil men and supply men in solving their problems, there is no limit that might be set to the general progress possible in the better and larger utilization of petroleum and its products.

It is entirely a question of attitude. Men and industries, with every reason to get together for the solution of common problems, too often stand apart thinking only of their individual interest and blind to the mutual benefits of united action. Had the practical oil man, and the supply men assumed that attitude the oil industry today would be far short of its present efficiency and the present great exposition of progress, with its instruction and inspiration for the future, would have been impossible.


SERVANTS to his MAJESTY
the AMERICAN OIL MAN
GASO PUMPS
for every oil industry need

Early Days in Petroleum



Bull Run, Pa.

Satterlee wells at Pithole.

Building iron tanks at Tidioute, Pa.

Wildcat Hollow wells at Petroleum Center.

Hauling oil from Pithole, Pa. in early days.

Cram refinery at Petroleum Center.

Oil Dippers near Oil City, Pa.

Burtus Well, Morey Farm, Pithole, Pa.

Hauling oil from Rouseville, Pa.

When the Boom was on in Pennsylvania

Oil shipping platform at Tidioute, Pa.

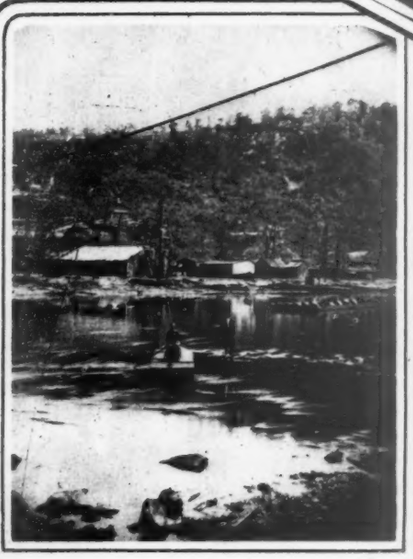
An office in the oil field.

Office U. S. Grant well at Pit Hole.

Barrel works and shipping yard, Pioneer, Pa.

Wooden oil tanks on flat cars in early days in Pennsylvania.

A soft spot in the road.



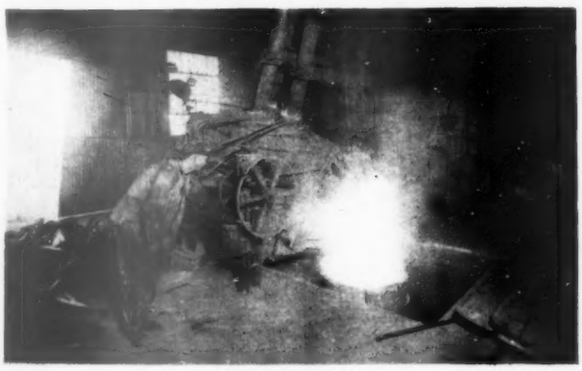
On Oil Creek in the boom days.

Exchange Hotel and shipping shed, Tidioute, Pa.

Oil teamsters on the "plank" road.

An Efficient Steel Foundry Next Door to You

A View of the Foundry



The Furnace

The close proximity of our foundry encourages the working out of many problems that could not be carried to a successful conclusion if the designer had to deal with a foundry at a distant point.

OKLAHOMA ELECTRIC STEEL

Manufactured by the Oklahoma Steel Castings Co. Tulsa, Okla.

Plant and Offices Peoria and Santa Fe Tracks

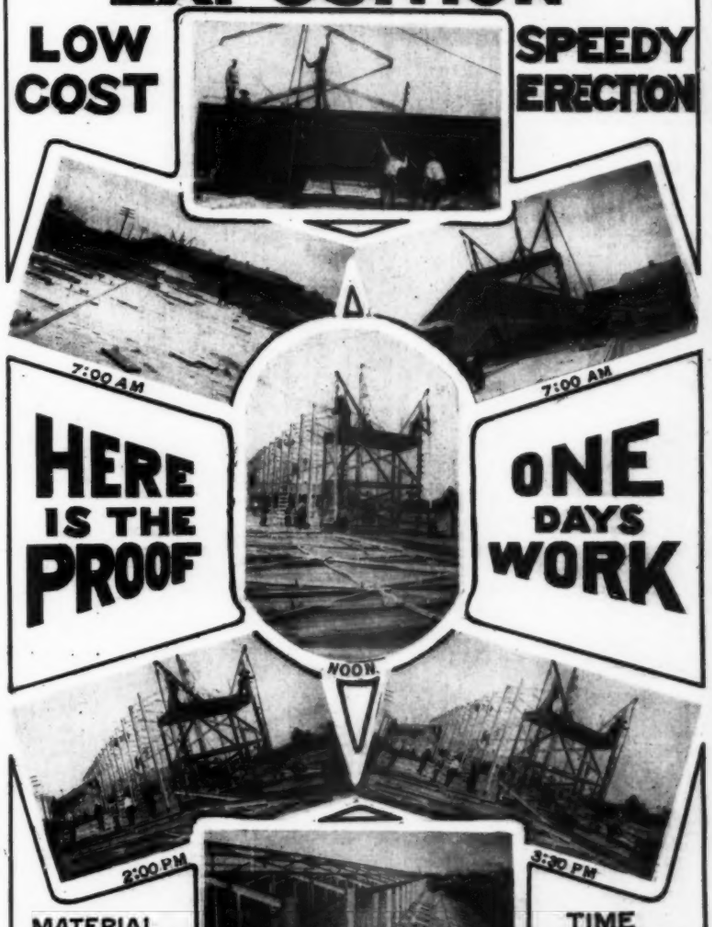
INDUSTRIAL CONSTRUCTION CO.

WHY?

STEEL BUILDINGS ARE CHOSEN TO SHELTER THE PETROLEUM EXPOSITION

LOW COST

SPEEDY ERECTION



HERE IS THE PROOF

ONE DAYS WORK

MATERIAL

295,000 LBS. STRUCTURAL STEEL
1060 SQUARES CORRUGATED IRON

TIME

REQUIRED 14 DAYS COMPLETED AHEAD OF SCHEDULE

ABOVE PHOTOGRAPHS OF THE TEXAS BUILDING SHOWS ONE DAYS ACTION OF OUR EFFICIENT ERECTION CREW

INDUSTRIAL CONSTRUCTION CO.

412 CENT. NT'L BANK BLDG. — TULSA OKLAHOMA

World's Largest Manufacturers

Sixty-two years of whole-hearted service to the oil industry is our record. In that time the oil business has grown from a struggling uncertainty to one of the country's greatest industries.

Keeping pace with this growth, the Oil Well Supply Co., has supplied vast fields with the latest and most approved equipment, always, abreast or a little ahead of the times. We are here to serve you, with the most modern and up-to-date equipment.

Ask at any of our 100 Branches for further information.

Oilwell Supply Company

Pittsburgh, Pa.

New York Los Angeles San Francisco Tampico Londo

IMPERIAL WORKS—The largest factory in the world devoted exclusively to the manufacture of oil well supplies. This factory is located at Oil City, Pennsylvania, and covers 52 acres of ground.

# of Oil Field Equipment

OSWEGO WORKS—Located at Oswego, N. Y. This is our Boiler Factory. In it are manufactured the famous "Oilwell" Boilers. The Oswego Factory covers 3 acres.
PITTSBURGH WORKS—In this factory we make our standard drilling and fishing tools. It covers 9 acres of ground and is also the largest factory of its kind.
"OILWELL"
ESTD 1862
C O
TRADE MARK
(REGISTERED)

View at Glade Run, a few miles below Warren, Pa., in the early days.

In 1865 when a railroad refused to permit an oil pipe line to cross its right of way, near Pit Hole, Pa. The Oil had to be transported across the tracks in a tank car.

An Oil Creek in the Allegheny River in 1863.

Bissel Bank Petroleum Centre, Penn. — The big oil bank in 1863.

Early day development in Venango County, Pa., showing wood for firing boilers.

The famous exchange Hotel at Petroleum Centre, Penn.

The Two Greatest Lights—Sun-Light in the Universe

PYLE-O-LYTES on Earth

In the Great Steel Centers

In the Great Rail Road Centers

The Brighter Flood-Lights for all Industrial Night Lighting

In the Great Lumber Regions

In the Great Oil Fields

Increase Production Cut Down Overhead

Write for Catalogue No. 4

The PYLE-NATIONAL Company

1334-58 N. Kostner Ave. Chicago, Ill.

Canadian Agents—The Holden Co., Ltd., Montreal, Winnipeg, Vancouver, Toronto

Sistersville, Pa., showing backyard oil wells.

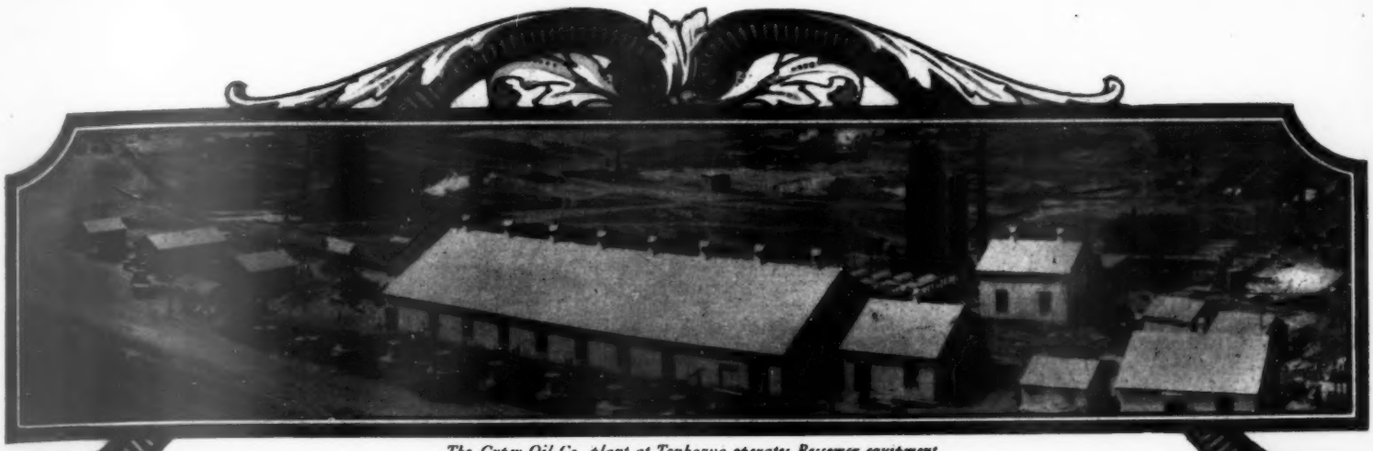
How "soup" was carried in the early days.

Curbstone Brokers, at Beaumont, Tex. in the early days.

Old home of Coal Oil Johnny near McClintockville, Pa.

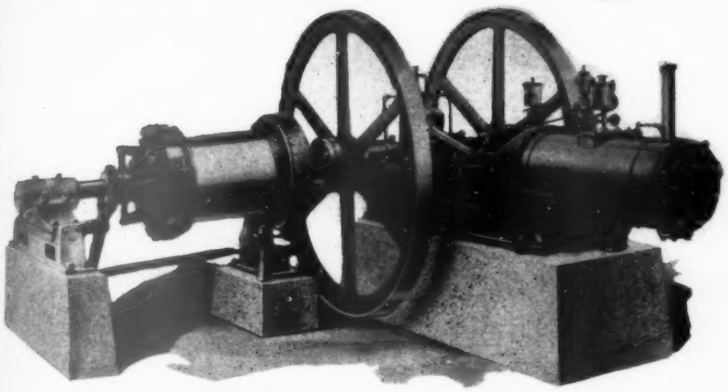
Old-time supply store, probably in vicinity of Beaumont, Tex.

View showing early-day development near Marietta, O.



The Gypsy Oil Co. plant at Tonkawa operates Bessemer equipment

The "Runnin'est engines" in the oil fields



Bessemer Oil Field Engines are known to operators in all oil fields for their efficiency, attentionless operation and freedom from repairs. That's why they are the universal favorites of the men who run them.

Actual performance under all operating conditions has firmly entrenched the Bessemer Oil Field Engine as the "runnin'est engine" of them all. That's why Bessemers are in the vast majority in every field.

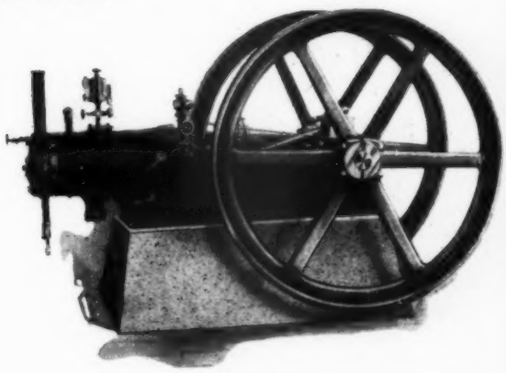
This Bessemer is a two-stroke cycle gas engine, built with less moving parts than any other power unit. There are no valves on the power end to wear and warp from the heat, and few moving parts to wear and cause trouble.

There is but one valve—away from the force of the heat—which admits both gas and air and is *not* mechanically controlled.

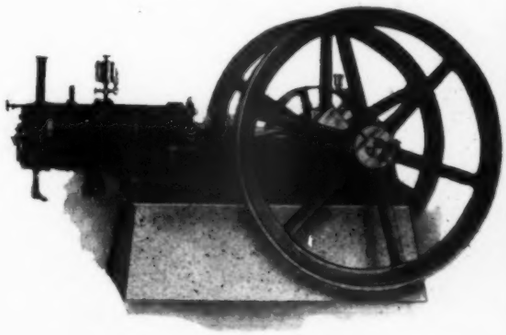
The famous Bessemer cross-head construction is used in this unit as in all Bessemer horizontal engines. By this method the cross-head pin and brasses are kept in sight and reach for easy inspection and adjustment, while top and bottom wear in the cylinder are eliminated, adding life to the cylinders, which are ground to size.

Bessemer Oil Field Engines are built with excess strength in every part, with only the highest grade materials. Each engine is thoroughly tested before shipment so that on its arrival it is ready to start up and keep going for a lifetime.

Thousands of these engines are in use in the world's Oil Fields. Both to the man with a few wells and the corporation with thousands the Bessemer Oil Field Engine is the most profitable power investment that can be made.



Bessemer Oil Field Engine—10 and 12½ H. P. style.

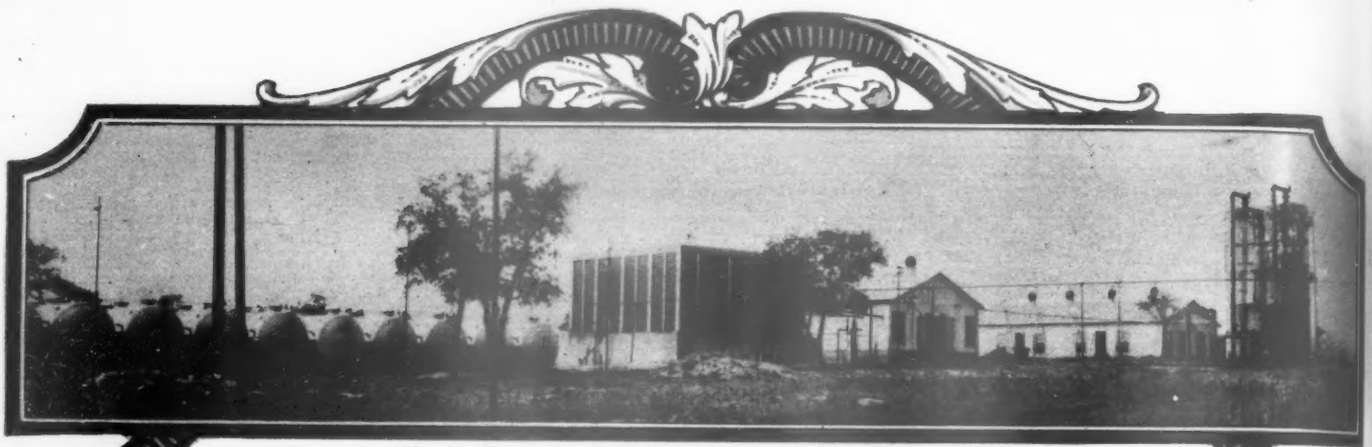


Bessemer Oil Field Engine—15 to 35 H. P. style.

THE BESSEMER GAS ENGINE COMPANY
GROVE CITY, PA.

Send for complete catalogues covering the Bessemer product in which you are interested

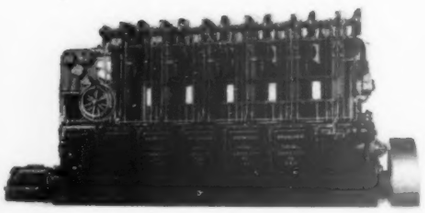
BESSEMER
OIL FIELD MACHINERY



Plant No. 10 is another Chestnut & Smith Corporation Plant using Bessemer equipment

Oil Engines- of every kind for every use

There is a Bessemer oil engine of every style, Diesel, semi-Diesel, two cycle, four cycle, marine and stationary, with a horse-power range of from 25 to 1000 H. P.

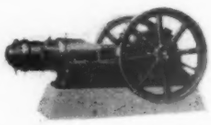


Bessemer Marine Diesel Engines are operating in vessels of every kind and are the most economical source of marine power available. Built in 3, 4 and 6 cylinder styles. 6 cylinder engines can be secured direct reversible.

Bessemer Diesel Engines

These engines are perfected four cycle full Diesel engines employing positive airless fuel-oil injection. They are built extra strength throughout to assure long life with minimum upkeep. Pistons and connecting rods are of exceptional length and main bearings are of large diameter which gives a high percentage of continuous operation under full load with a minimum repair expense.

For heavy duty power requirements the Bessemer stationary Diesel is unequalled, both for economy and long trouble-free operation. Can be secured in 3, 4 or 6 cylinder styles from 50 to 1000 H. P.



The Bessemer Single Cylinder Type IV Oil Engine

The most economical power where natural gas is not available. These engines are the two cycle type, with cross-head construction, adjustable main bearings and enclosed crank case.

Bessemer Diesels direct connected to generators furnish electric power at the lowest possible cost per K. W. hour. Scores of installations in widely diversified fields prove their unequalled economies.

The Bessemer Oil Engine Driven Compressor

The Bessemer Direct Oil Engine Driven Compressor combines the popular Bessemer Type IV Oil Engine and the Type VIIIB Compressor.

Bessemer Semi-Diesel Oil Engines

These engines have been perfected over a period of twenty-seven years and are an ideal source of economical power for requirements from 25 to 180 H. P.

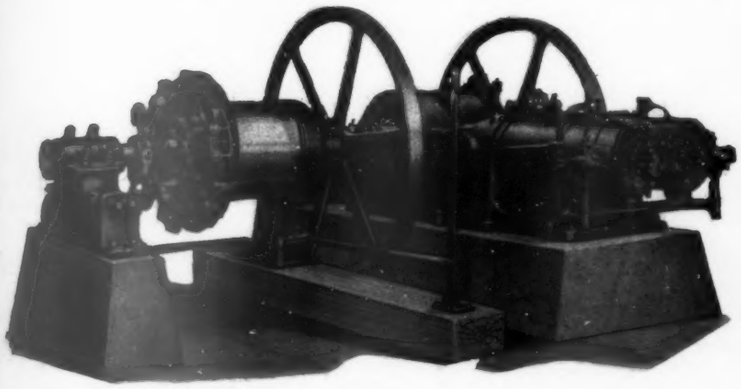
They are two-cycle horizontal engines built with cross-head, adjustable main bearings, enclosed crank case, governor control and use no batteries, magnetos or spark coils.

For clean, dependable, economical power the Bessemer semi-Diesel engine is unequalled in its class.

BESSEMER
OIL FIELD MACHINERY

The Texas Co. plant at Drumright, Okla., is also Bessemer equipped

Greater Drilling Economy made possible with the "Bessemer 45"



The "Bessemer 45" is a speedy, sturdy drilling unit that effects worthwhile drilling economies. Actual service in drilling under every conceivable condition gives positive proof of the efficiency of the "Bessemer 45."

Wherever drilling crews have tried a drilling rigs, the "Bessemer 45" has been a favorite. It saves money in fuel consumption, water, standby time and drilling crew time.

The "Bessemer 45" combines a 45 H. P. Bessemer twin cylinder gas engine and a special drilling clutch. The engine is of the enclosed crankcase type with splash lubrication (force feed to cylinders), ground cylinders, cast *steel* flywheels, cross-head and exceptionally rugged construction throughout.

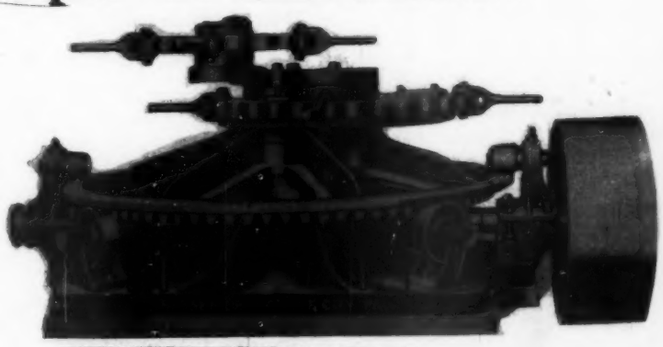
The clutch is smooth running and a distinct advance in clutch design. Gears are of machine cut steel while the six friction shoes are of heat-resisting asbestos composition.

For maximum drilling economy there is no better unit than the "Bessemer 45." They pay for themselves in a short time.

Bessemer Roller Pumping Powers serve for a "Couple of Lifetimes"

The installation of a Bessemer Roller Pumping Power assures trouble-free operation for many years. In the Bessemer power the master wheel is carried on four smooth-rolling rollers and held down by two rollers on top so that the master gear can't climb on the pinion gear. Then, too, the shaft bearings are spaced far apart, assuring perfect alignment, while the pinion gear teeth are of steel with unusually long, wear-resisting teeth.

You can't go wrong if you use Bessemer Roller Pumping powers—as hundreds of users will tell you.



Pumping power troubles and expense are wiped out when Bessemer Roller Pumping Powers are installed. They last a lifetime and do their work without continual attention or replacement of parts. Can be secured in single or double style.

BESSEMER
OIL FIELD MACHINERY

Magnolia's Harris No. 3 plant is Bessemer equipped, of course

Bessemers equip 90% of the country's gasoline plants

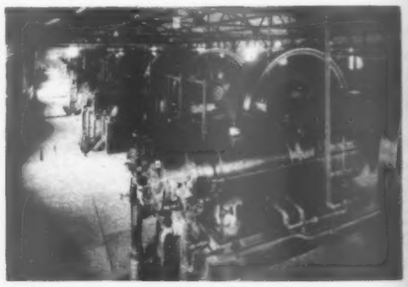
Bessemer equipment plays a large part in the efficient, economical operation of the country's gasoline plants. In small and large plants Bessemer is the standard equipment.

Interior of the Gypsy Oil Co.'s plant No. 2 showing the 8-165 H. P. and 2-50 H. P. Bessemer Gas Engines.

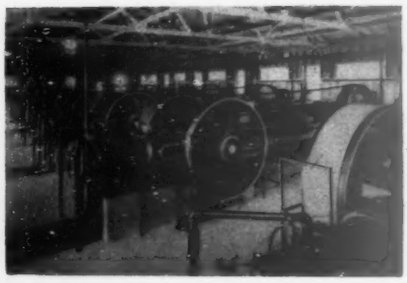
At the Drumright Plant of the Standard Oil Co. of Indiana there are 8-165 H. P. Bessemers.

This gasoline plant of the Aztec Oil Co. at Ingalls, Okla., has 3-110 H. P. and 1-35 H. P. Bessemers.

The Industrial Fuel Supply Co. at Placentia, California, is operating 11-165 H. P. and 3-15 H. P. Bessemers.



The Gilliland Gasoline plant at Bigheart, Okla., is equipped with 8-85 H. P. Bessemer twins.



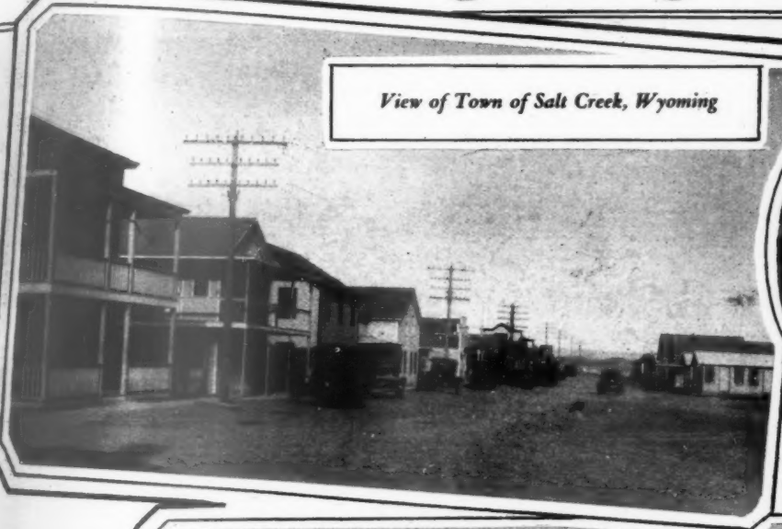
The Magnolia Petroleum Co. plant at Ingalls, Okla., operates 8-110 H. P. and 1-40 H. P. Bessemers.

Interior of the Bessemer equipped plant of the Amerada Petroleum Co. at Ardmore, Okla.

This installation in the Lyman Booster plant of the Phillips Petroleum Co. consists of 14-165 H. P. Bessemer Twin Cylinder Gas Engines.

BESSEMER
OIL FIELD MACHINERY

Salt Creek, Wyo.



View of Town of Salt Creek, Wyoming

Main St., Carter Oil Co's Camp, Salt Creek, Wyoming

E. T. Williams gasoline plant, Salt Creek Field, Wyoming

Lavoye, Wyoming in the heart of the Salt Creek Field

The Journal's Rocky Mountain car at Trail's Fork in the Ferris Mountains, Wyoming

Stage from Salt Creek to Casper

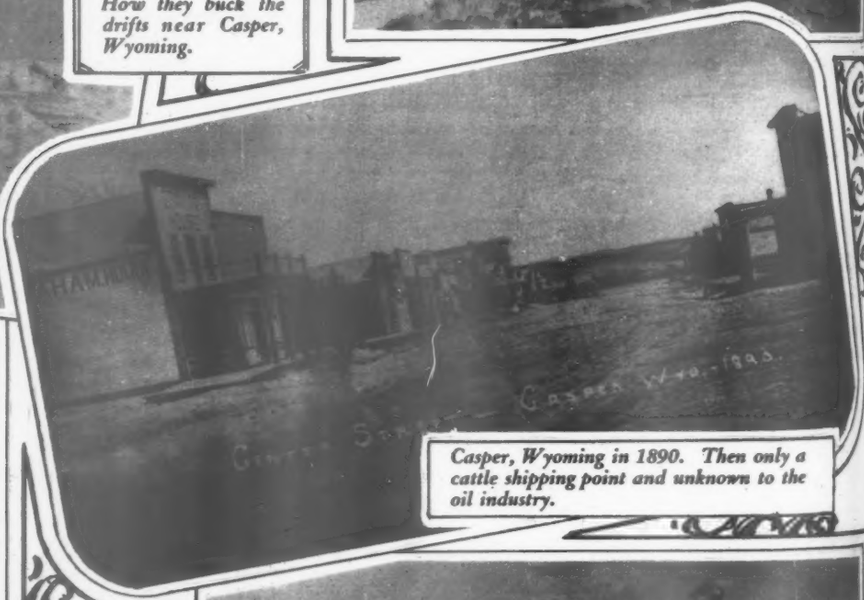
Around Casper Wyo.

Industrial Relations Building, at Standard of Indiana Plant, Capital, Wyoming.

Drilling on Pine Mountain in Wyoming early in May.

Knee deep and then some, Casper.

How they buck the drifts near Casper, Wyoming.



Casper, Wyoming in 1890. Then only a cattle shipping point and unknown to the oil industry.

On the job everywhere.

Big gas well, in Ferris Fields, Wyoming.

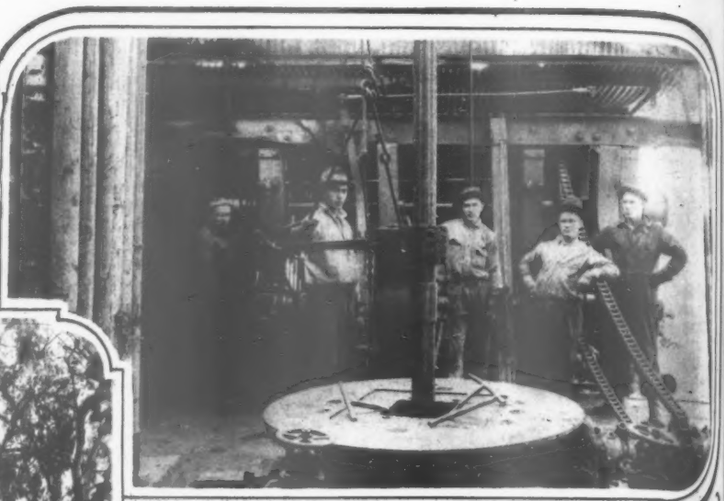
Visit Our New Quarters

This banking institution has been a part of the city's life for more than 17 years, which means that many thousand people have had a part in its growth and are interested in its achievement.

We cordially invite you to call on us and view our new and comodious quarters.

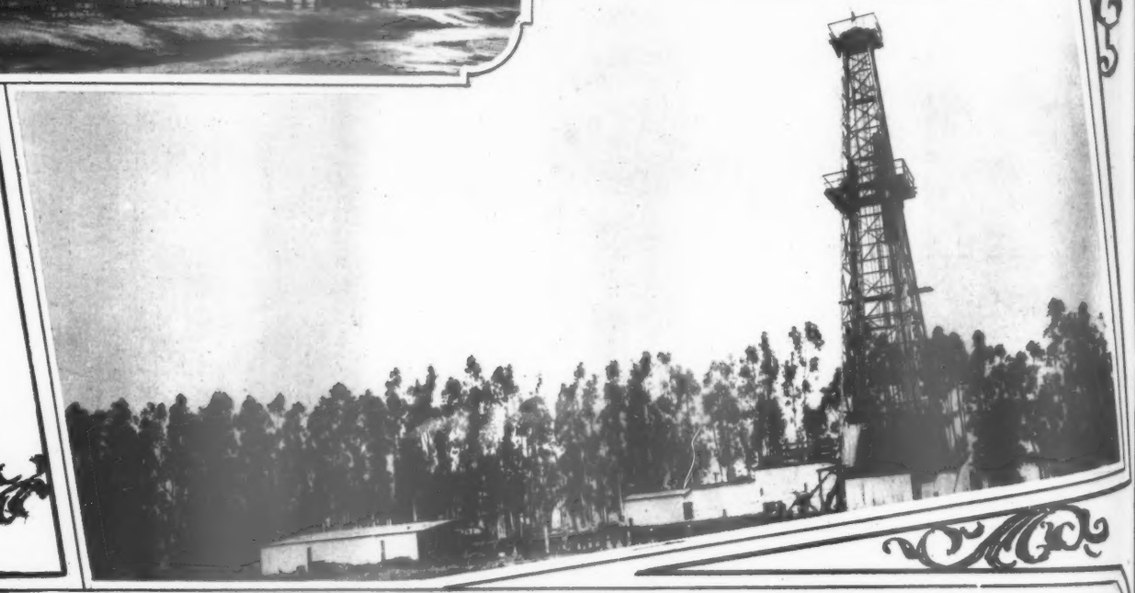
THE CENTRAL NATIONAL BANK
OF TULSA.
CORNER BOSTON AND BOSTON

Drilling a discovery well in the Rosecrans field.

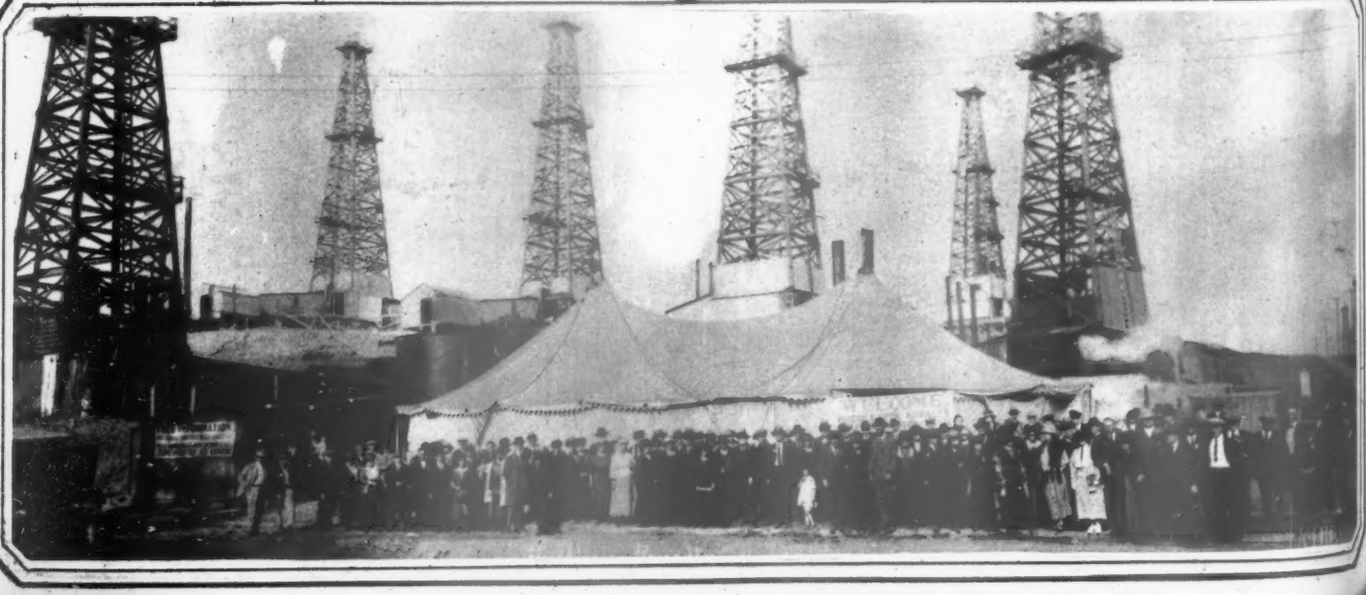


Rosecrans estate in California.

Discovery well at Rosecrans field, Calif.

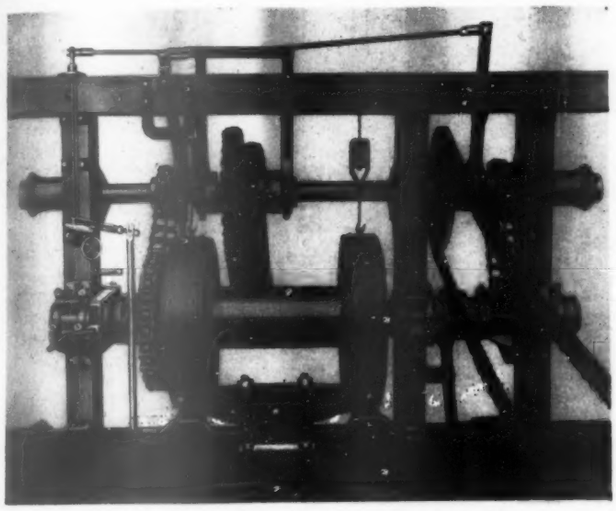


One of the free lunch stands in California.



Rotary Refinement

THE new No. 6 Titusville Acme Rotary Equipment marks the greatest refinements yet made in the design and manufacture of rotary drilling machinery. Here are a few of the distinctive features of proven worth which are incorporated in the No. 6 designs.



The No. 6 Titusville Acme Drawworks

The No. 6 Drawworks

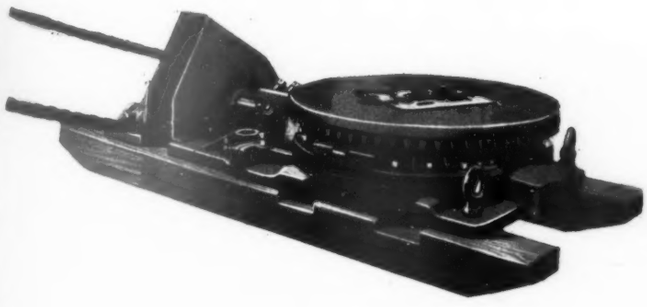
4 Speeds to the Drum.

2 Speeds to the Rotary for each engine speed.

Equalized Brake Stress.

New and powerful Drum construction that removes the hazard of spreading or overheating.

16" Diameter drum to save wire lines.



No. 6 Rotary

The No. 6 Rotary

Bearings enclosed and running in oil bath.

Holddown Bracket that practically surrounds the table.

Positive lubrication.

Steel table made to special specifications insuring longest wear.

Large Pinion Shaft.

Built for convenience.

The TITUSVILLE IRON WORKS Co.
TITUSVILLE ~ PENNA.

TITUSVILLE EQUIPMENT
Oil Country Boilers
Steam Drilling Engines
Tico Gas Engines
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Pumping Powers
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Rotary Machines Rotary Drawworks
Swivels Sinch Pumps
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TITUSVILLE OIL COUNTRY MACHINERY
RUGGED ~ ENDURING

AFFILIATED COMPANIES FOR DISTRIBUTION
For Mid-Continent, Eastern, Western and Coastal Fields:
The Continental Supply Co.
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The Republic Supply Company of California
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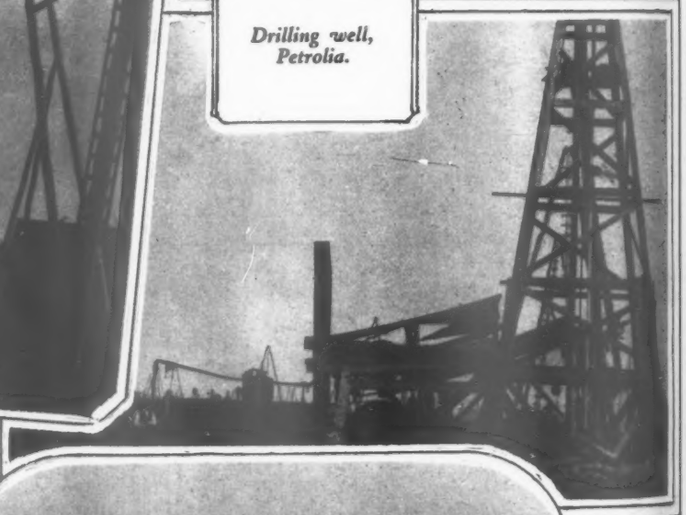
No. 3 Rector Street,
N. Y. City

Petrolia, Canada

Close-up of drilling well, Petrolia.

Engine house and wooden sucker-rods or jerkers, used in pumping wells, Petrolia.

Close-up pumping wells, Petrolia, Ont.



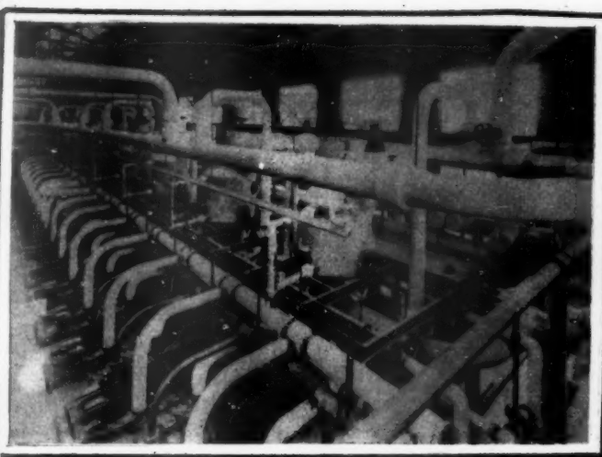
Drilling well, Petrolia.

Petrolia fields in winter time.

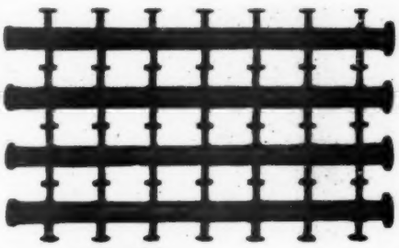
Petrolia, Canada, was the scene of one of the most interesting oil field developments of all time. Here are the tripod pole derricks over the pumping well.

How Power Piping Co. meets every Oil Field need

Above—Unretouched photograph of large absorber specially built for prominent refinery.



At right — General view of installation furnished to large sulphur plant. Piping furnished complete for all boilers, heaters and process units.



At left — One of many heaters constructed for large southern producing and refining company.

At right—8" steel heater with 2½"x¾" welded outlets.

Exchanger Coil

Complete Service

We design, assemble, construct and supervise erection, assuring a capable and complete service to producing and refining companies, whether the work in question be simple or complex. Specializing particularly on the construction of heaters, super-heaters, coolers, absorbers, condensers and exchangers, the Power Piping Company is in a unique position to serve the industry's power piping needs.

POWER PIPING COMPANY
Pittsburgh

Power Piping
FOR EVERY INDUSTRIAL NEED

Scenes from Mexico

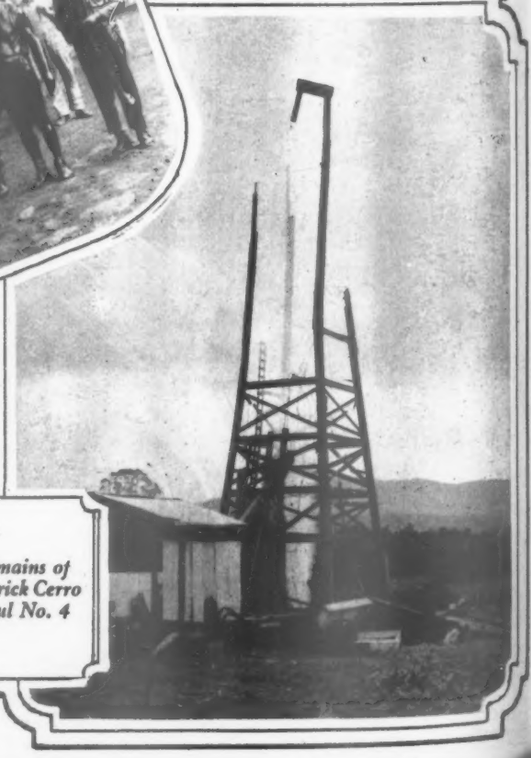
Seepage in Cerro Azul Area (One of 7210 in the District), Mexico

Tierra Blanca No. 2, Mexico

Capping Cerro Azul No. 4, Mexico

Drilling Crew after closing in Cerro Azul No. 4

Seepages at Juan Felipe, Mexico



Remains of Derrick Cerro Azul No. 4

The Men Who are Selling CONTINENTAL Quality Products

E. W. WOODFORD, *Treasurer*
St. Louis, Missouri

WM. K. HUGHES, *Vice President*
St. Louis, Mo.

W. R. WILKINSON, *Secretary*
St. Louis, Mo.

J. H. KOUNTZ
District Manager
Tulsa, Okla.

GEO. W. STAOB
Ass't District Manager
Tulsa, Okla.

C. M. WORLEY
Ass't District Manager
Blackwell, Okla.

DOUGLAS R. BROWN
District Manager
Coffeyville, Kansas

J. R. CERTAIN
Ass't District Manager
Okmulgee, Okla.

J. T. HARRINGTON
Ass't District Manager
Houston, Texas

ED J. DRAKE
District Manager
Houston, Texas

R. E. BELL
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ROY E. KOHN
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J. J. BISETT
District Manager
Ft. Worth, Texas

The Men Who Are Selling

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Quality Products

Youngstown Pipe
Titusville Boilers
Westcott Valves
Black Wire Lines
New Bedford Cordage
Gardner Pumps
Ohio Injector Co. Valves
Titusville Rotaries
Hewitt Tires
Tnemec Paint
Conservo Burners
Acme Drilling Tools
Jefferson Unions
Mark Unions

Visit with us at the Exposition
Ohio Bldg., Booths Nos. 4, 5, 6, 7

CONTINENTAL SUPPLY CO.
St. Louis, Mo.

More than 70 Stores in the Oil Country

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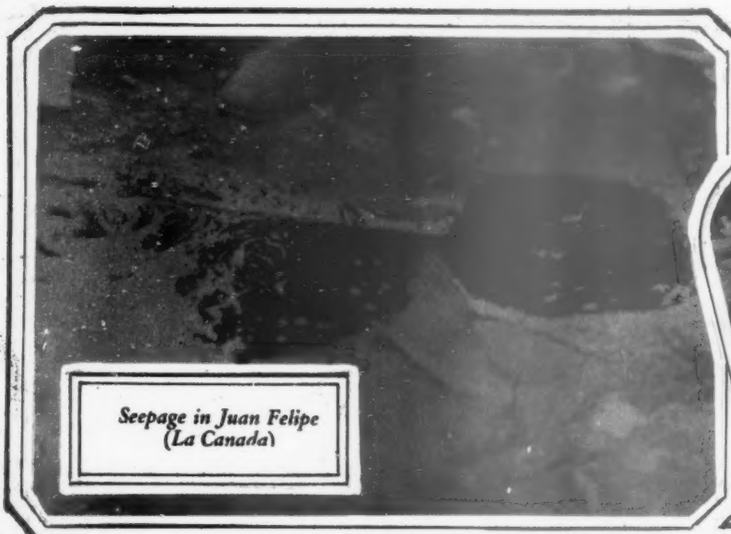
HARRY L. NOLAN, *Mgr. of Sales*
St. Louis, Mo.

HENRY M. BROWN, *Ass't Treas.*
St. Louis, Mo.

A. W. THOMPSON, St. Louis, Mo.

CONTINENTAL

"If Continental Sells it there is No Better"



Seepage in Juan Felipe (La Canada)

Oil Tank in Canal Zone

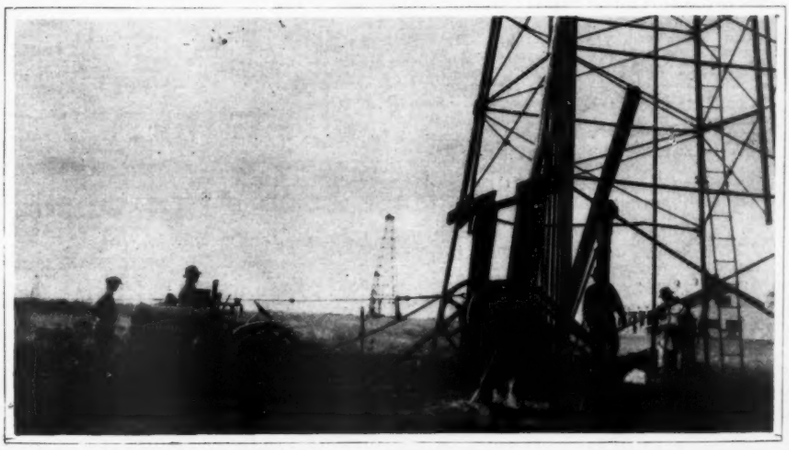
Interesting scenes of the operations here and abroad of the Pan-American Petroleum & Transport Co.

Cerro Pelon showing asphalt flows (Moralillo Mexico)

Drilling at Long Beach, California

BAY CITY OIL FIELD TRACTOR WINCH

A COMBINATION YOU HAVE BEEN WAITING FOR



SEE IT AT THE PETROLEUM EXPOSITION OCT 2-11

PULLING TUBING FROM 3,000 FT. WELL BURBANK FIELD.

"BAY CITY" Oil Field Winches

have always been recognized as the best designed and most flexible winches available. To maintain this reputation, the winch illustrated above has been designed for installation on the International Harvester 10-20 McCormick-Deering tractor. This winch includes the patented friction reverse that has given BAY CITY equipment past advantages and also by the use of two distinct sources of power, gives a very high speed drive for light loads as well as multiple speed heavy load operation. Three speeds for heavy duty work 100—200—500 line travels, also fast forward and reversing mechanism that gives a speed of 650 feet per minute both directions. Used for lifting light loads and running empty hook up and down.

To date, this is the best oil field pulling rig designed, and of course it is built by the

Special Tractor Warranty

The seller agrees to replace free the *two-bearing crank shaft* in any 10-20 or 15-30 McCormick-Deering Tractor, should it break during the life of the Tractor, provided the broken parts are promptly returned to the factory or one of its branch houses.

Further, the seller agrees to replace free any *crank shaft ball bearing* in the 10-20 or 15-30 McCormick-Deering Tractor, which may break, wear out or burn out during the life of the Tractor, provided that the defective ball bearing is promptly returned to the factory or one of its branch houses.

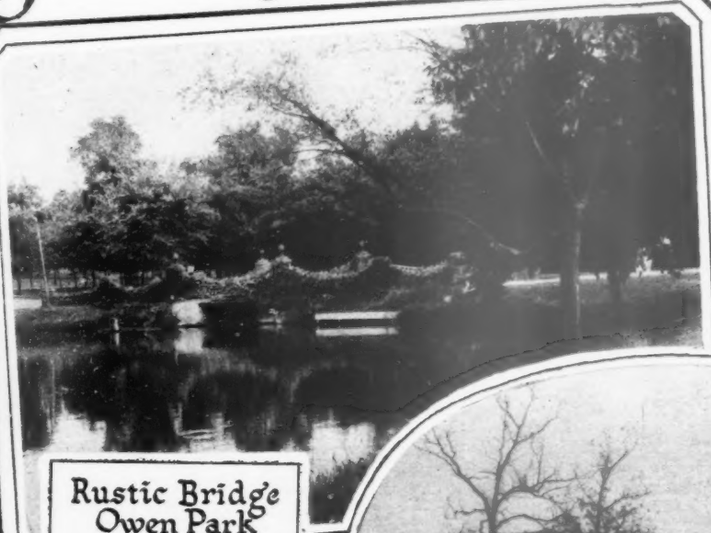
BAY CITY FOUNDRY & MACHINE CO., Bay City, Michigan

HOPKINS MOTOR CO.

DISTRIBUTORS IN MID-CONTINENT FIELD.

211 SO. ELGIN AVE. TULSA, OKLA.

Scenes Around Tulsa

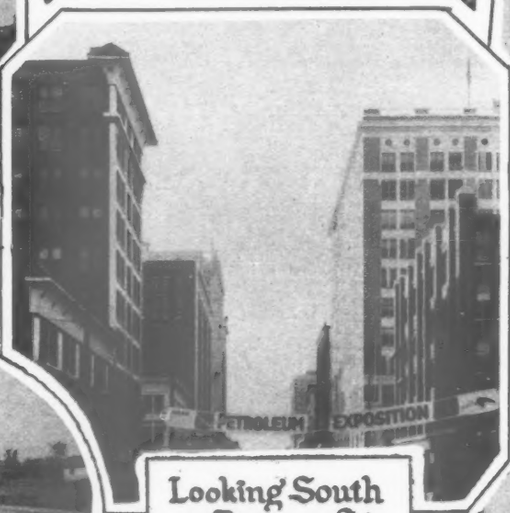


Rustic Bridge
Owen Park

Tulsa
Hotel

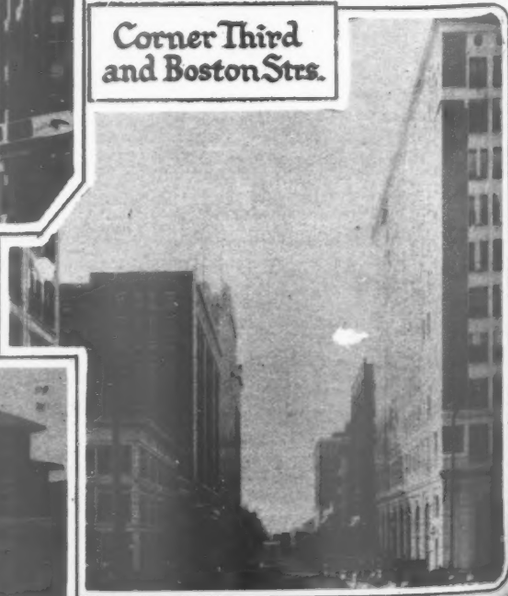
Oakhurst
Country Club

New Mayo
Hotel



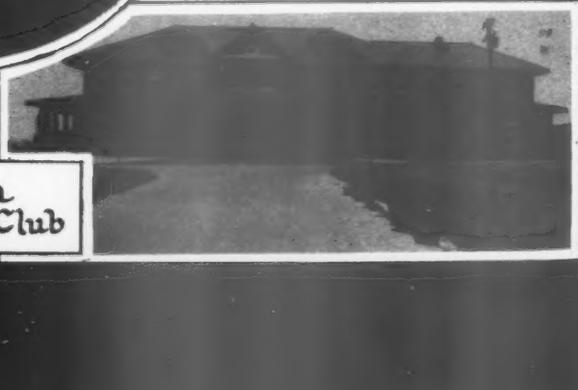
Looking South
on Boston St.
from Second St.

At Fifth and
Main Strs.



Corner Third
and Boston Strs.

Wading Pool
for Children



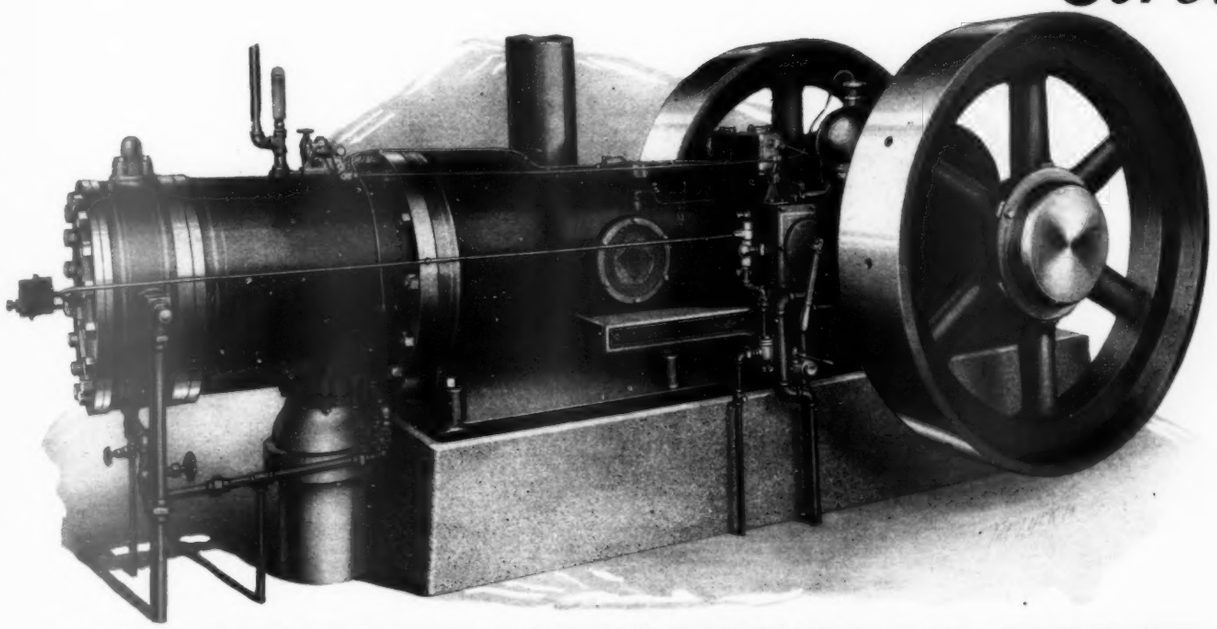
Tulsa
Country Club

PRIMM OIL ENGINES

For

Oil Well Drilling
Oil Well Pumping
Oil Pipe Line

Service



THE NEW TYPE "SBU" PRIMM OIL ENGINE

PRIMM Oil Engines specially equipped for Oil Well Drilling have many advantages over forms of power that have been used in the past.

They weigh no more than a boiler for a steam engine of the same size—neither are they as bulky to move around.

The fuel cost of operation of a "PRIMM" engine is a matter of but a few cents per hour.

The speed of the "PRIMM" Drilling Engine is controlled from the derrick and its quick pick-up when the tools drop enables it to "get out of the way" readily.

When the tools are being pulled, or the well bailed out, the new "PRIMM" will maintain constant speed regardless of the amount of cable on the bull wheel, or reel—saving much time in pulling out or bailing.

The new "PRIMM" engine is built to last and has a semi-steel cylinder, steel crosshead, high point carbon steel piston rod and crankshaft.

The "PRIMM" engine has long been a favorite among Pipe Line men—its simplicity and heavy duty type of construction fits it admirably for continuous service under severe operating conditions.

Further information will be gladly furnished.

THE POWER MANUFACTURING COMPANY

727 Cheney Avenue

Marion, Ohio

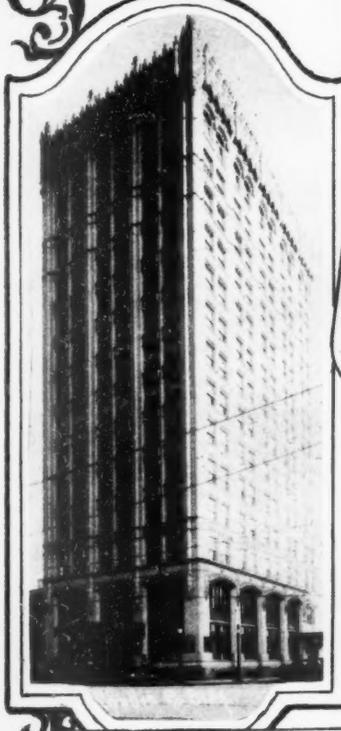
The PRIMM Engine will be shown in Operation at the TULSA EXPOSITION, Oct. 2-11, 1924

A Few of Tulsa's Principal Office Buildings

Mid-Continent Building

Tidal Oil Company

Kennedy Building

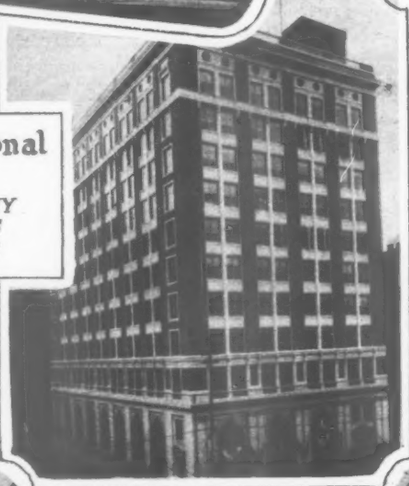


Cosden Building

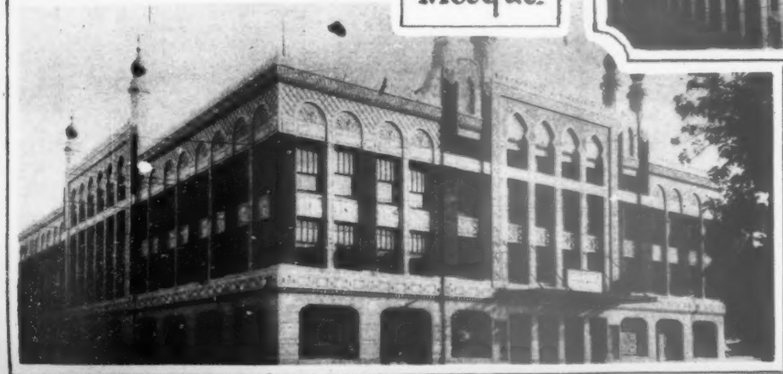
Chestnut and Smith Corp.

Exchange National Bank
IN WHICH MANY OIL COMPANIES HAVE OFFICES

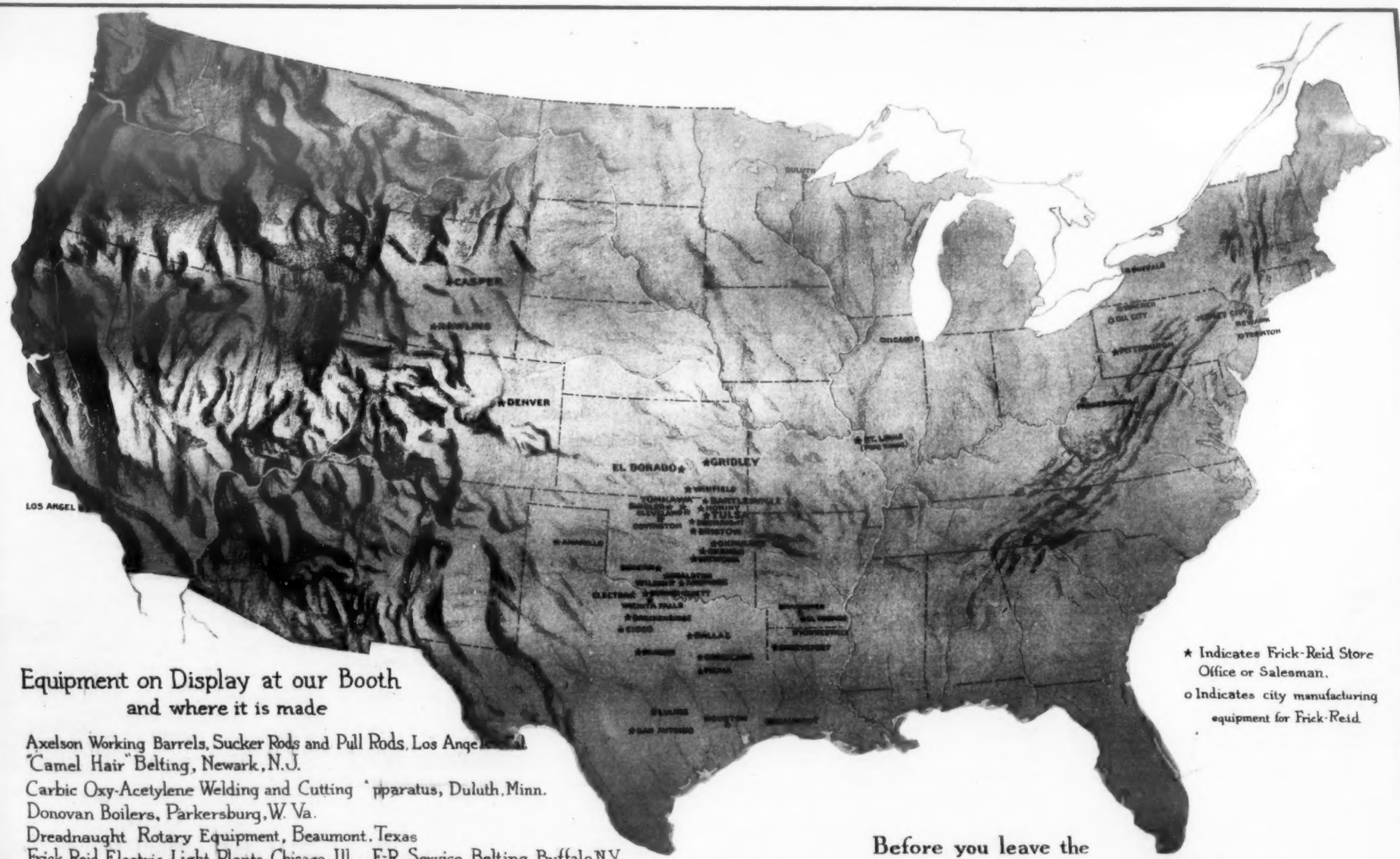
Atlas Life Building



Akdar Shrine Mosque



Petroleum Building



★ Indicates Frick-Reid Store Office or Salesman.

o Indicates city manufacturing equipment for Frick-Reid.

Equipment on Display at our Booth
and where it is made

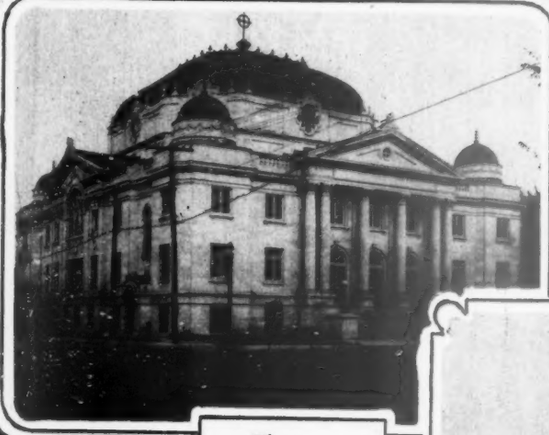
Axelson Working Barrels, Sucker Rods and Pull Rods, Los Angeles, Cal.
"Camel Hair" Belting, Newark, N.J.
Carbic Oxy-Acetylene Welding and Cutting Apparatus, Duluth, Minn.
Donovan Boilers, Parkersburg, W. Va.
Dreadnaught Rotary Equipment, Beaumont, Texas
Frick-Reid Electric Light Plants, Chicago, Ill. F-R Service Belting, Buffalo, N.Y.
Jones and Laughlin Tubular Goods, Pittsburgh, Pa.
Reid Engines and Powers, Oil City, Pa. Roebling Wire Lines, Trenton, N.J.
Ratigan Pumping Equipment, Los Angeles, Cal.
Transit Steam and Power Pumps, Oil City, Pa.
Warren Steam Engines, Warren, Pa. Whitlock Cordage, Jersey City, N.J.

Before you leave the
International Petroleum Exposition and Congress
See the

FRICK-REID EXHIBIT

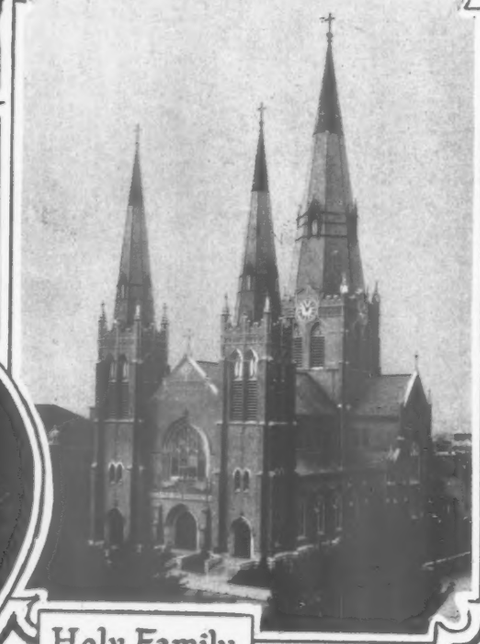
Some of Tulsa's Beautiful Schools and Churches

Methodist Church



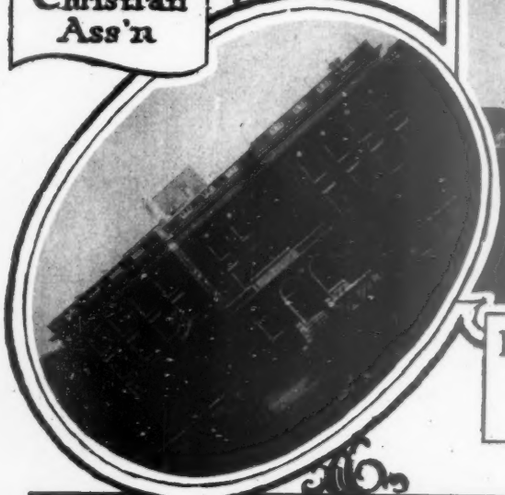
First Christian Church

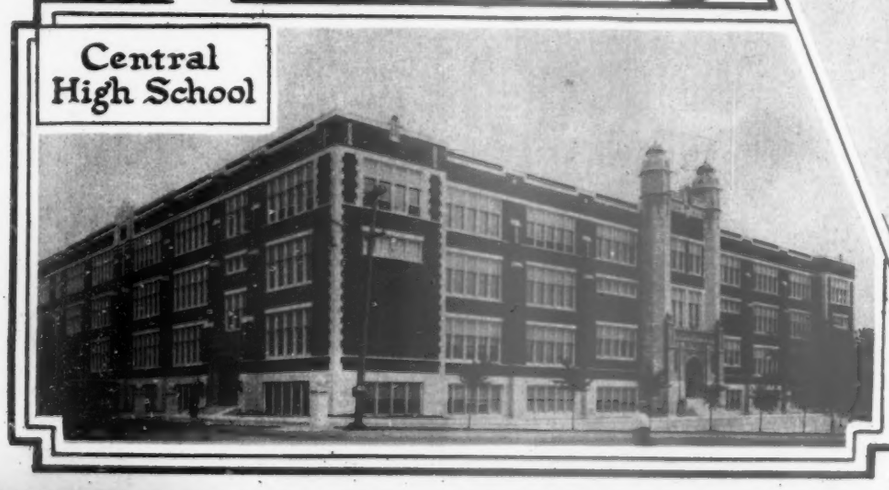
Young Womans Christian Ass'n



Holy Family -Catholic- Church

First Church of Christ Scientist--

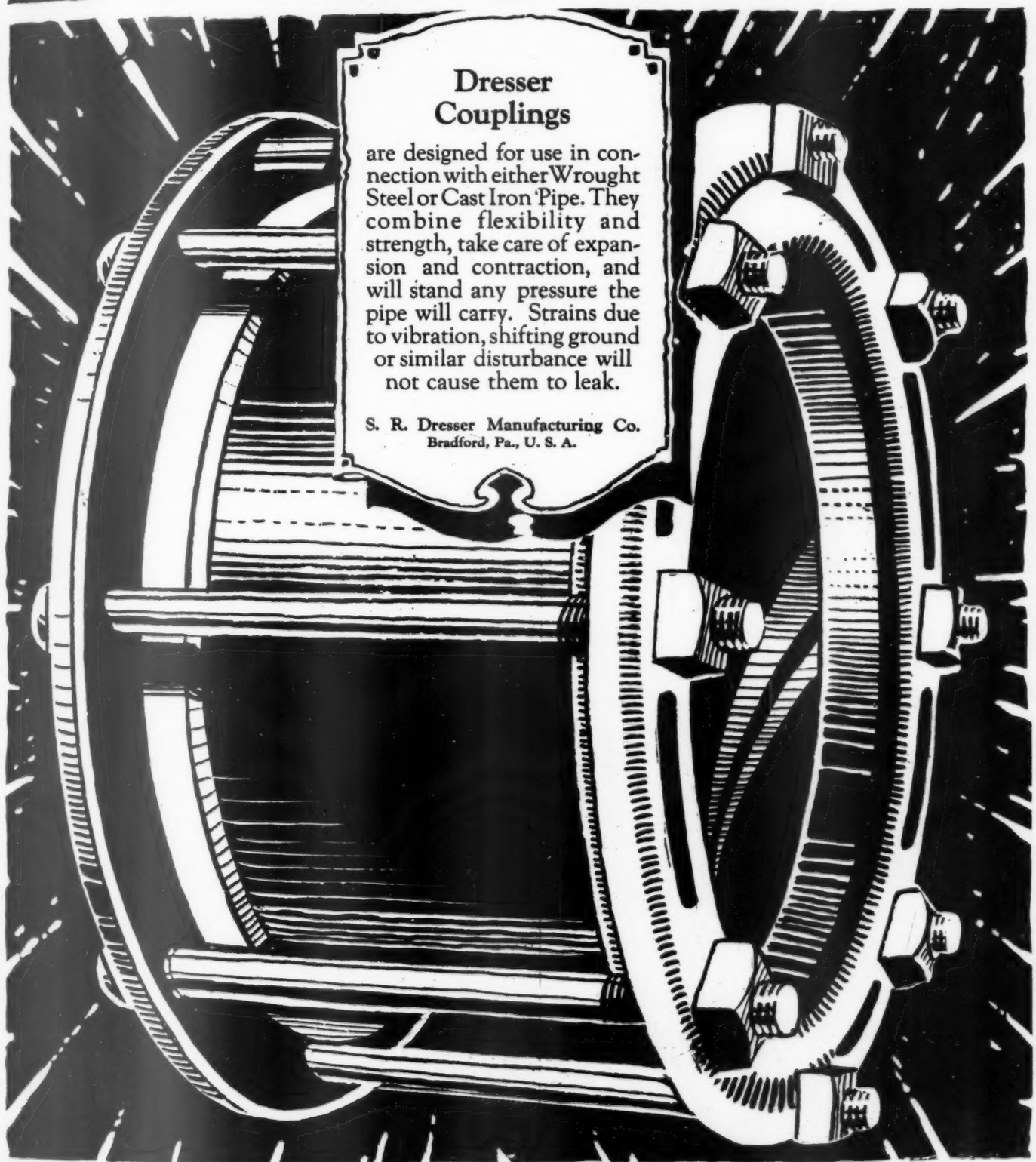




Central High School

First Baptist Church

DRESSER



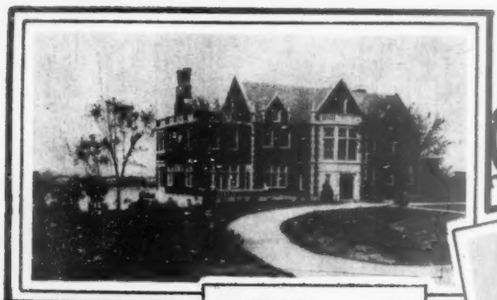
Dresser Couplings

are designed for use in connection with either Wrought Steel or Cast Iron Pipe. They combine flexibility and strength, take care of expansion and contraction, and will stand any pressure the pipe will carry. Strains due to vibration, shifting ground or similar disturbance will not cause them to leak.

S. R. Dresser Manufacturing Co.
Bradford, Pa., U. S. A.

DRESSER·COUPLINGS·DOMINATE

Some of the Beautiful Homes in Tulsa



E.P.Harwell

G.R.McCullough

P.J.Hurley

Home of~
T.K.Smith.
former residence
Josiah Cosden

James P.
Flanagan's
home

A.L.Farmer

E.B.Reeser

S.C.Clover

D.W.Franchot's
~ home ~

J.M.Gillette

J.M.Hayner

A.G. Oliphant

L.B.Jackson

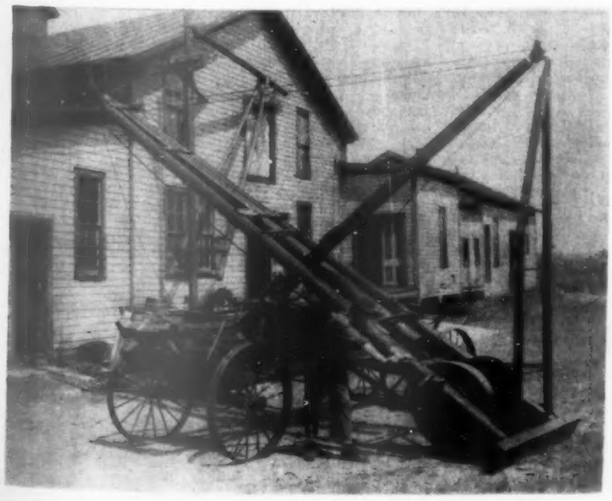
J.A.Hull's
home

QUIT CHASING RAINBOWS

The ease of operating an IRON KING is shown by the pictures below

Ready for the road. Trim and neat; compact; nothing superfluous

Note the ease in which the operator is handling the heavy machine. He can place it in position on either side of wagon and on any side of casing head



With a few deft motions the operator has raised the legs, advanced the gin pole, and is now raising the machine into position

Let's get down to brass tacks. Paint and smooth salesmanship sometimes cover a multitude of defects. Investigate, talk to other producers, put it to the test and we believe you will agree with us when we state that the ***Iron King*** is the best pulling machine on the market today. A pulling machine to be a success under any and all circumstances, and a source of profit to any producer, must have three requisites: ***Speed, Strength and Durability.***

Speed

The ***Iron King*** has it. One of Pennsylvania's largest independent producers writes us that he has moved an ***Iron King*** 400 feet, set it up and had the polish rod on the ground in 12 minutes. That's fast enough isn't it?

Strength

Its iron and steel construction gives it the strength for any need. Whenever any weakness was detected in the past it was strengthened and reinforced until today we have a machine that will stand a most terrific strain without injury.

Durability

Built throughout of the best and strongest materials obtainable, constructed by careful and experienced workmen, the ***Iron King*** is good for years of steady, hard and severe service. The first ***Iron King*** taken into Pennsylvania more than 17 years ago has been in constant service during all of that time, and today is still pulling them with all of its old time vigor.

And That's Not All

You require no horses to raise it. No chance for ropes or block to break and let it fall. One man raises it into position ***without fastening a single guy line and he cannot pull it over.***

When fully extended the crown pulley towers 40 feet above, thus eliminating all chance for rods and tubing to climb over the top. For casing or extra hard pulls it has a first position of 26½ feet and for starting tubing a second position of 35 feet.

If your oil well supply store will not get you an ***Iron King*** write us direct. We have a catalog for you. Where shall we send it?

The **IRON KING MANUFACTURING CO.**
Bradner, Ohio

Say you saw it in the Oil & Gas Journal

Ready to pull in first position. No horses have been used and not a guy line has been fastened. A few turns of the crank raises the upper section into the second and third positions

Spavinaw Lake and Dam, the New Source of Tulsa's Water Supply

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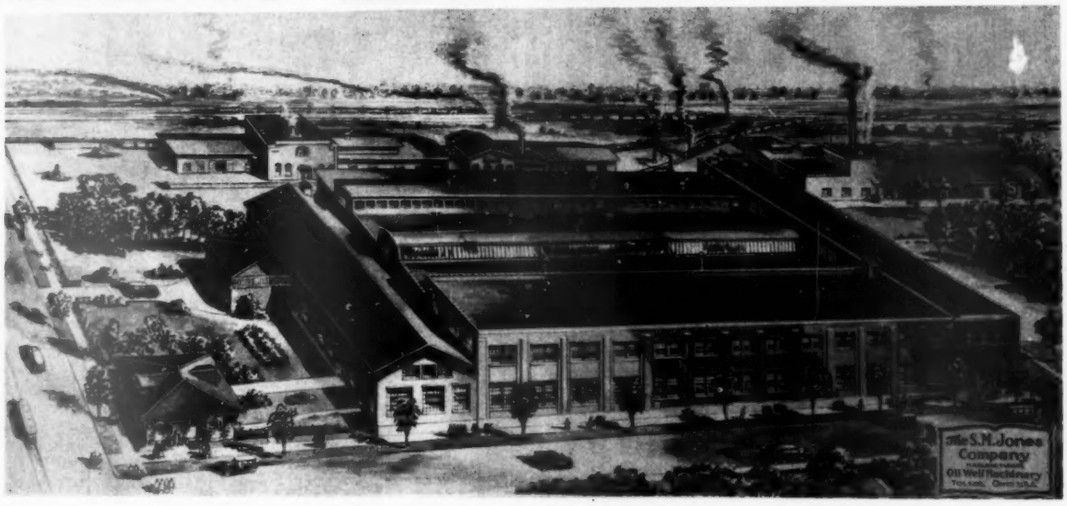
The Largest sucker rod plant in the world-



PLANT OF THE S.M. JONES CO. TOLEDO, O.

-and the worlds finest-strongest sucker rods-the new Forged End rods-

the Jones 'Giant' & the Jones 'Perfect'

WRITE FOR BOOKLET TODAY

The
S.M. Jones Co.
Toledo,
Ohio.

A SECTION OF THE ROD STORAGE DEPT.

"See Our Exhibit at the Tulsa Exposition"

The Center of oil field supply service for the Mid-Continent

Exposition visitors are not only invited to call at our attractive Exposition Booths, Numbers 7 to 12 inclusive, but to visit our general offices, warehouses and main shops, while in Tulsa. It will be a pleasure for us to show you our headquarters facilities, which, in addition to our branch stores and shops located throughout the oil fields, enable us to give you REAL SERVICE on the leading oil field supply lines manufactured.

INTERNATIONAL SUPPLY CO.

Branch stores in 23 of the leading oil field towns in Oklahoma, Kansas, Wyoming, Colorado and Texas.

General Offices and Works
Tulsa, Okla.
District Offices: Denver, Colo., Fort Worth, Texas and El Dorado, Kans.

Opening Day at the Exposition

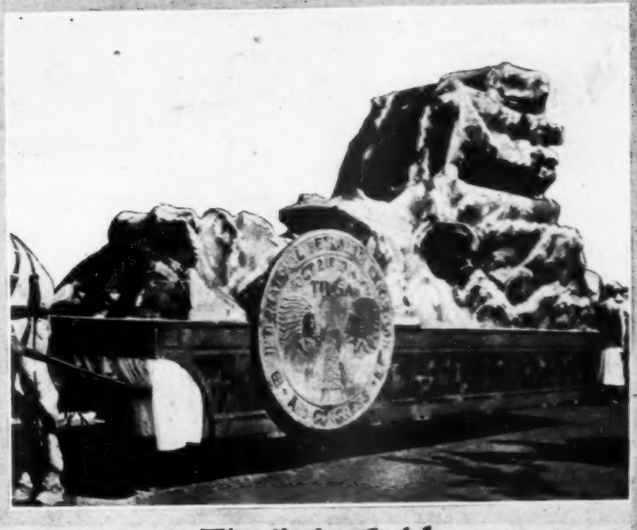
Princess Wyoming

King Petroleum

Unique Foreign Exhibit

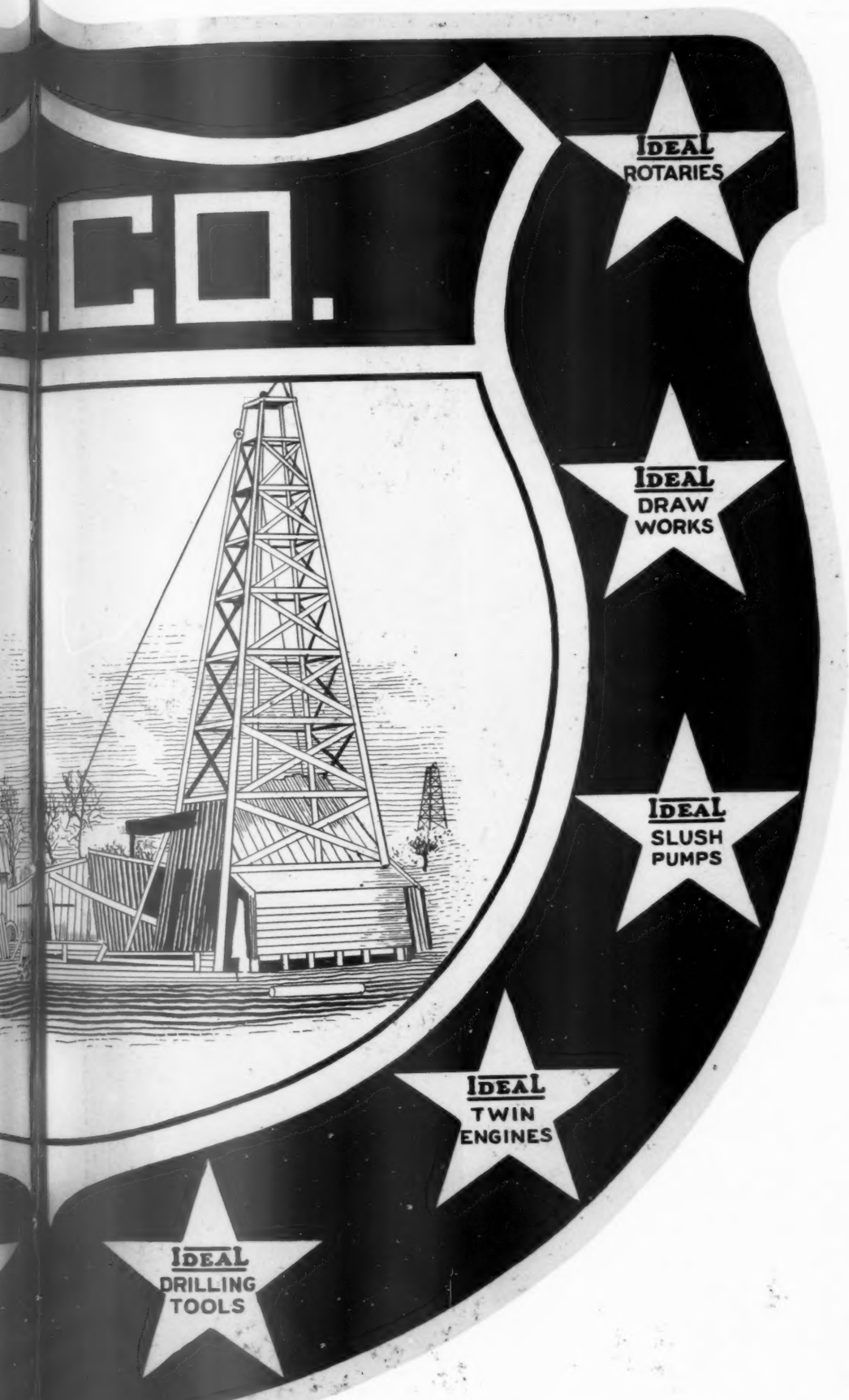
Princesses Pass in Review

Princess Ohio



Flowing Gold

NATIONAL
RIGS
N.S.D
NATIONAL
POWERS
NATIONAL
TITAN
SUCKER
RODS
NATIONAL
BOILERS
NATIONAL
RIG
IRONS


IDEAL
ROTARIES
IDEAL
DRAW
WORKS
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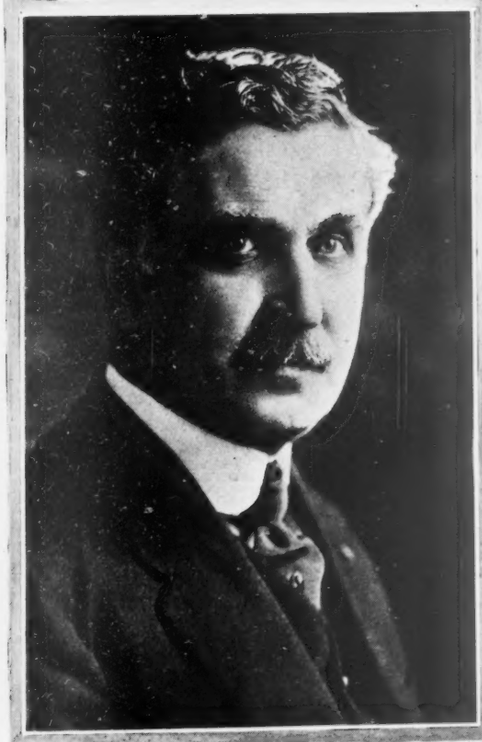
SLUSH
PUMPS
IDEAL
TWIN
ENGINES
IDEAL
DRILLING
TOOLS

Speakers at Petroleum Congress



George Otis Smith

Fay M. Conner

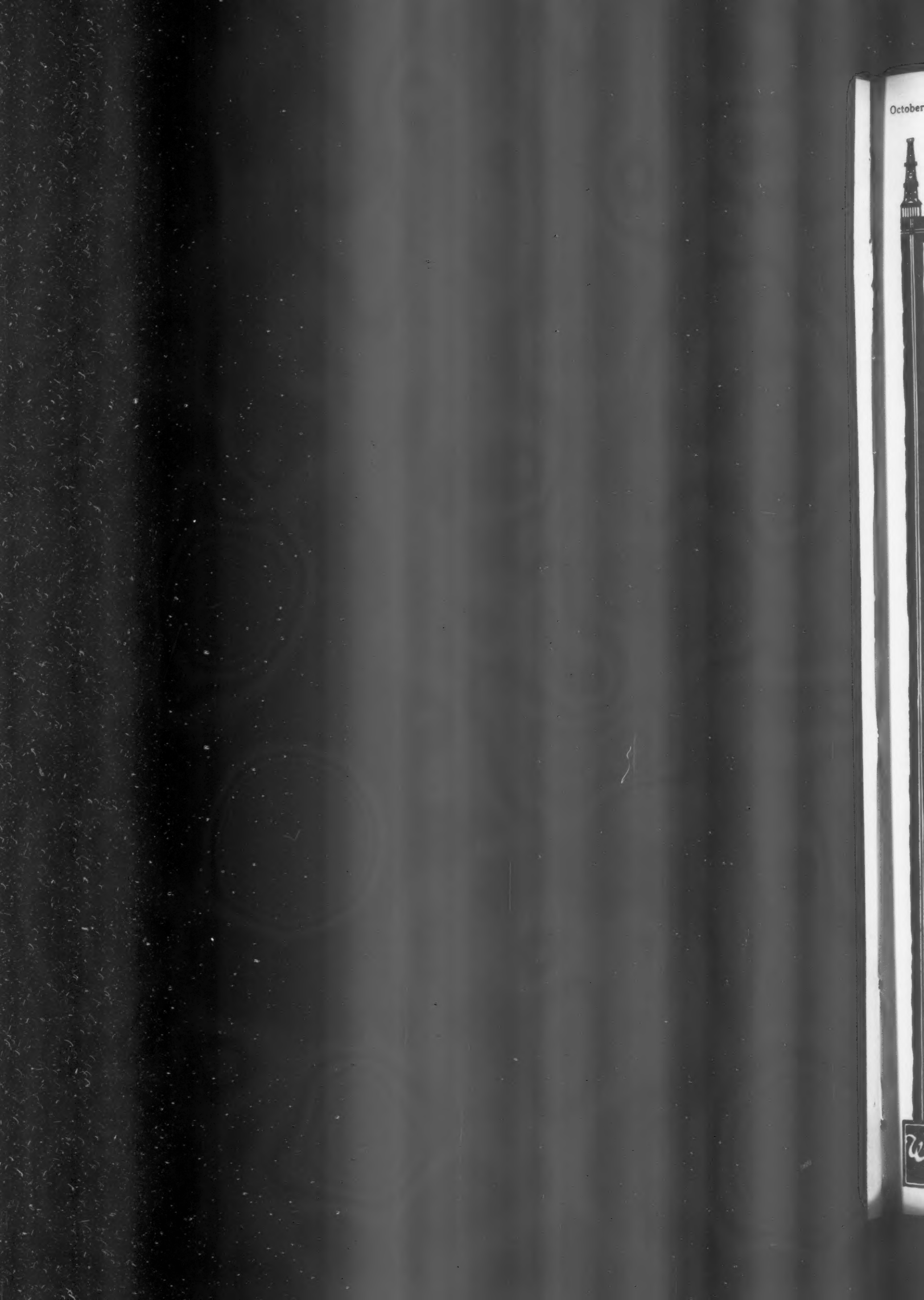
Dr. David White

A. P. Serebrowsky

C. M. McKergow

H. E. Horning

Shade E. Wallen



It's a Wilson

Now drop forged!

—the new WILSON ROTARY TONGS

—in 3", 4" and 6" sizes

Ready to Deliver

Send for descriptive literature

Exhibited at the International Petroleum Exposition

Request for Catalog

Wilson Oil Tools Corp.
2301 E. Vernon Ave.
Los Angeles, Calif.

Send your new Catalog describing Wilson Drop Forged Rotary Tongs.

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Wilson & Willard Mfg. Co.
MANUFACTURERS

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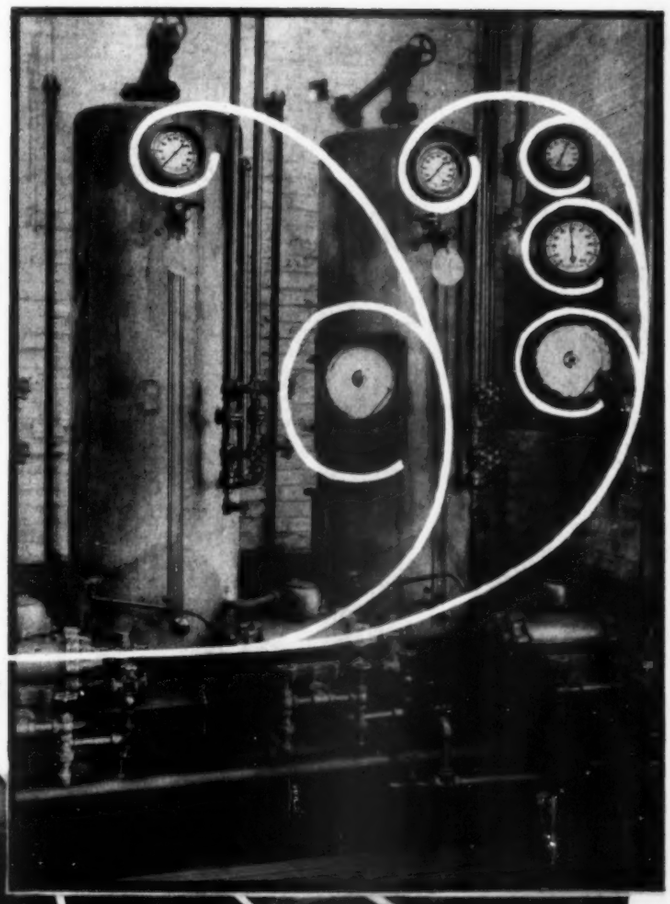
American Schaeffer & Budenberg Instruments

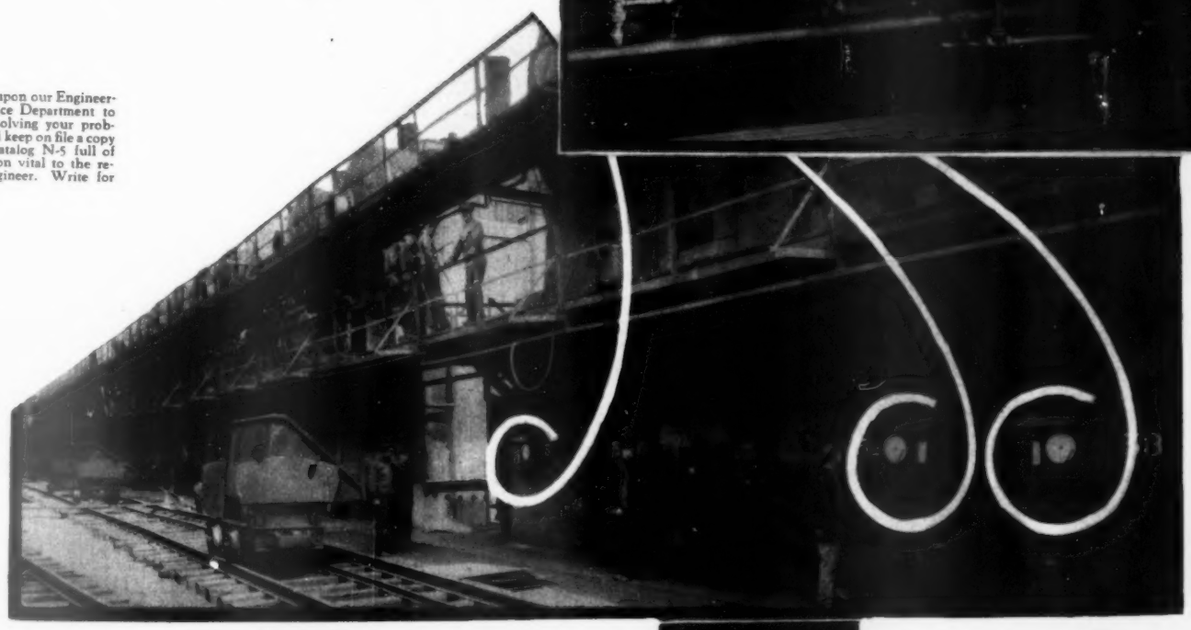
comprising a complete line of Indicating and Recording Gauges and Thermometers, Pressure and Temperature Controllers, Valves, etc., standard in hundreds of refineries, have amply testified to the extreme care and familiarity with refinery conditions used in their design and construction.

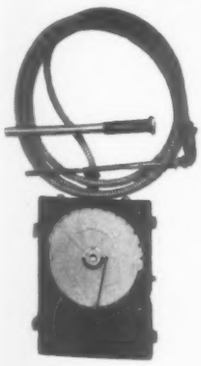
These instruments *stand up under service.* They hold costs at the minimum. They permit of closest control of processes. They enable you to

know your pressures your temperatures



Depend upon our Engineering Service Department to help in solving your problems. And keep on file a copy of our Catalog N-5 full of information vital to the refinery engineer. Write for a copy.





Columbia Recording Thermometer. Temperatures up to 1000 degrees F. Standard still equipment.

American S. & B. Refinery Pressure Gauge.

Columbia Refinery Recording Gauge.

Reform Mercury Dial Thermometer for temperatures up to 1000 degrees F.

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General Offices:

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Branches: Buffalo Boston Philadelphia Pittsburg Chicago Cleveland Detroit Tulsa Los Angeles Atlanta Seattle Salt Lake City

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Views from Western Canada

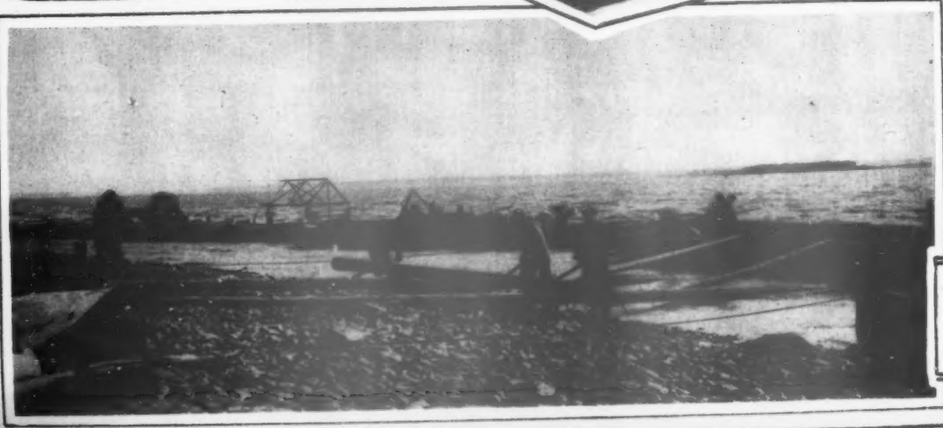
Hauling boiler into place at Fort Norman, Canada

The Imperial Oil Ltd's No. 70 Bbl. well, near Fort Norman, Canada

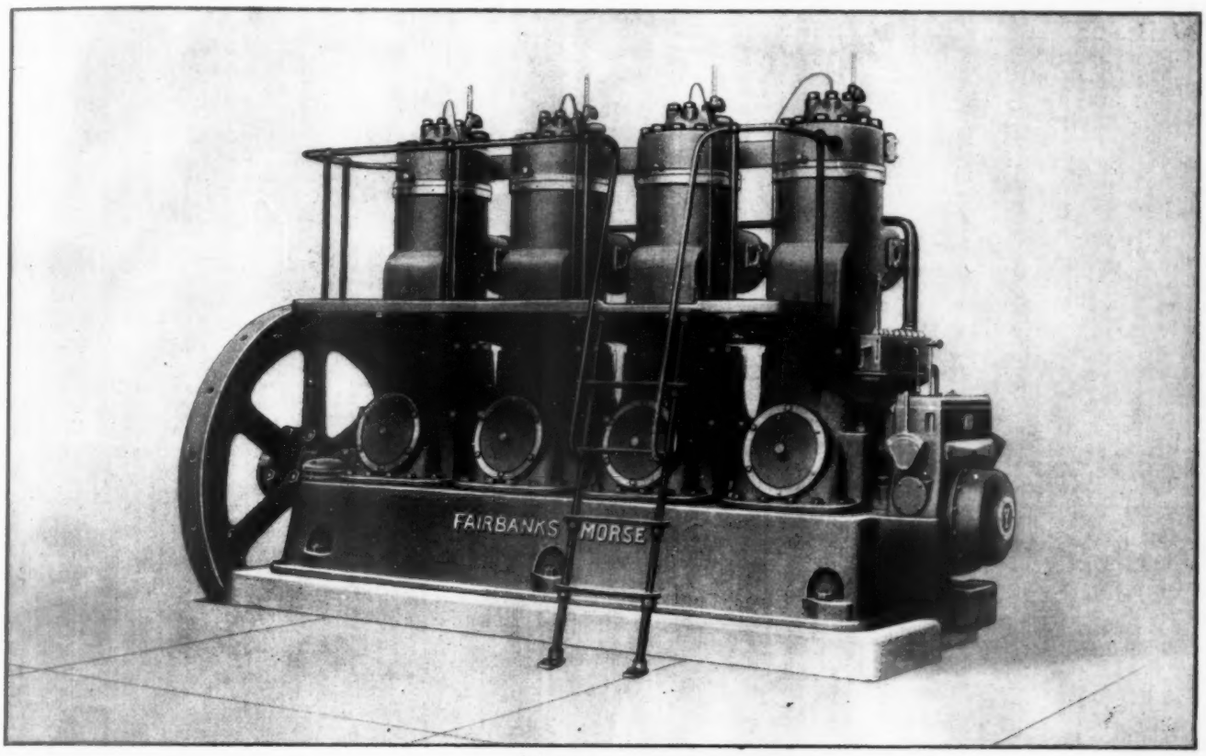
Mudding up a wild gas well in Canada

Oil Docks at Fort Smith, Canada

Winter quarters, Imperial Oil, Ltd., Ft. Norman, Canada



Unloading scows with oil well materials, Fort Norman, Canada



THE TYPE "Y" DIESEL

THE Type "Y" Diesel offers the highest overall efficiency, the lowest overall operating cost.

Meets oil-field conditions in every detail—starts immediately from cold, starting and operating at a compression of 500 lbs. per square inch. Few moving parts all fully enclosed but easily accessible.

Of the same simple, airless injection, two cycle design of which there are 700,000 horse-power in actual operation. Its dependability is a big feature—capable of long, continuous non-stop runs without fouling, without the necessity of adjustment. Uses wide range of cheap fuel oils.

Safe, economical lubrication system, foreign matter being constantly excluded by efficient filteration.

Service ready at hand anywhere in the commercial world from service and sales branches or foreign sales agents.

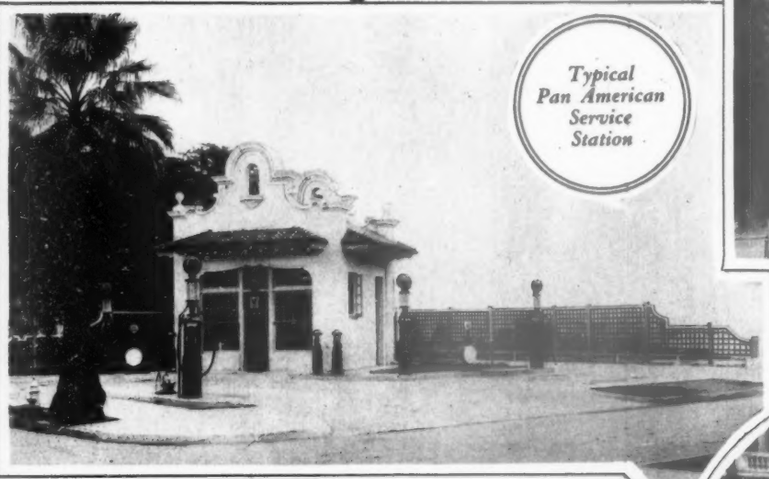
Ask Fairbanks-Morse engineers to show you savings you can make with "Y" Oil Engine power.

FAIRBANKS - MORSE

Manufacturers · **Chicago**

28 Branches at your service

Oil Marketing Abroad



Typical Pan American Service Station

Paris—Typical service station owned by the Bedford Petroleum Co.

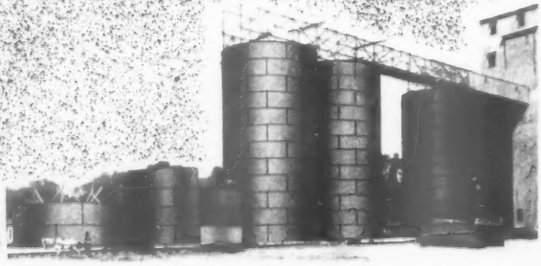
Mexico City Service Station operated by Huasteca Petroleum Co.

Brazil—Standard Oil Company gasoline pump, Rio de Janiero

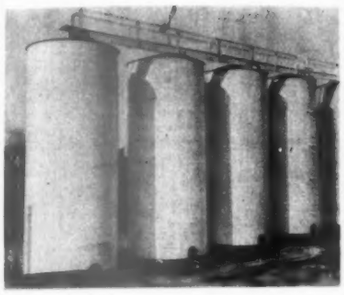
PIONEER
TANK & BOILER Co.
TULSA-OKLA

Oil Refinery Tankage

Crude and steam stills
Condenser Boxes
Agitators, Towers
Heat Exchangers
Separators
Storage and
Pressure
Tanks
Etc.



Immediate Shipments Tulsa Stock
Phone O-1146 or Write Box-1926



30 years of Constant Improvement

Since the inception of our business in 1894, the spirit of improvement has permeated our entire organization.

Constantly improvements are being made on each item of the full Columbian line of oil equipment.

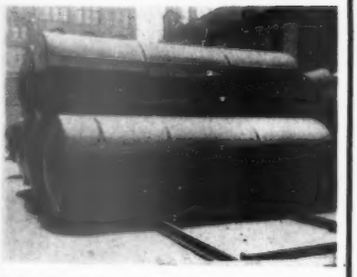
Make it better today than yesterday, is our ideal.

The result is that in Columbian Tanks are built features of advance design and improved construction not available elsewhere.

Take the Columbian Portable Bolted Tank. It alone is made with a double reinforced, lap joint deck. The first gas-tighting tests were made with Columbian Tanks. Now, no Columbian Bolted Tanks are made that are not gas-tight equipped. The first 5,000 and 10,000 barrel bolted tanks were Columbian Tanks. All Columbian Bolted Tanks carry a greater factor of safety than standard 55's.

Or, take the Columbian Truck Tank. It alone has these features: Partition Mounted; 3-point Supported; Jointless Pipelines; Removable Side Carrying Racks; Welded-on Bucket Box and Dished Heads and Partitions outside welded. The tank, its mounting, its pipe lines and its bucket box are expertly welded into a single unit of steel.

Before you go home from the International Petroleum Exposition come and see in detail just why you get bigger value in Columbian Tanks. Get better acquainted with the Columbian Dealer-Erector organization. Make yourself at home in Space Nos. 41, 42, 71 and 72.



Truck Tanks
Oil Field Tanks
Bulk Station Tanks
Underground Tanks

Floating Tank Decks
Barrels, Buckets
Carrying Cans, Funnels

Faucets, Valves
Oil and Gasoline Pumps
Plates, Sheets, Angles

Outposts of Columbian Service. At these points Columbian maintains branch offices or warehouses. Sales engineers of experience and ability are in charge. Here is a complete contact organization completely at your command.

TULSA, OKLA.
Owasso and Frisco Tracks

NEW YORK
30 Church Street

LOS ANGELES, CALIF.
806 Wright & Callender Bldg.

DALLAS, TEXAS
210 Southwestern Life Bldg.

CASPER, WYOMING
321 Moose Bldg.

SAN FRANCISCO, CALIF.
564 Market Street

COLUMBIAN STEEL TANK COMPANY

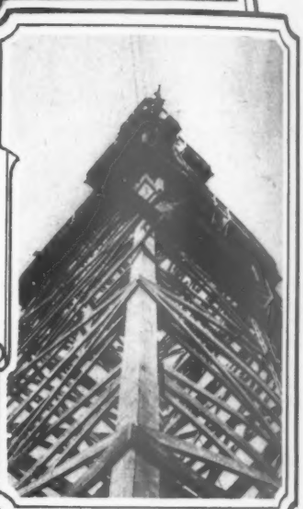
EST'D 1894

1405-1625 WEST 12TH STREET KANSAS CITY, MISSOURI

New home of Union Oil Co., Los Angeles, just completed.

Heavy oil flowing from early-day California well in Kern County.

First home of Union Oil Co., Los Angeles, 1890.



Looking up the side of the World's Highest Derrick.

Pacific and Atlantic Photo.

Oklahoma Natural Gas Company

Production, Transmission and Distribution of Natural Gas

Number of cities and towns supplied	Forty Three
Population served	Four Hundred Thousand
Number of miles of pipeline from the wells to the city gates	One Thousand
Number of miles of pipeline in city distribution plants	Five Hundred
Number of wells connected to transmission system	Three Hundred Eighty Three
Compressor stations	Seven
Compressor horse power	Nine Thousand Seven Hundred Eighty Five

Our transmission system is so constructed that any distribution plant connected can share in the service of the approximately thirty different gas fields to which we are connected, with a combined open flow volume of one billion five hundred million cubic feet.

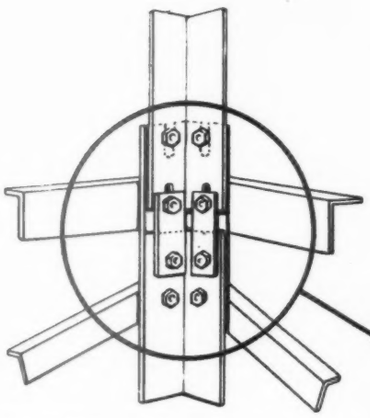
OKLAHOMA NATURAL GAS COMPANY

OUR MOTTO

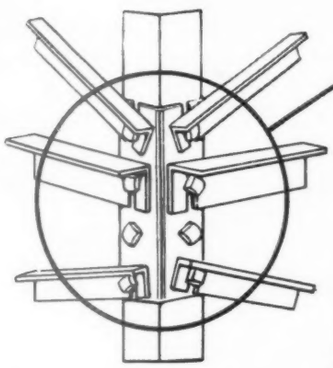
"One hundred percent service and courteous treatment to all"

PARKERSBURG STEEL DERRICKS

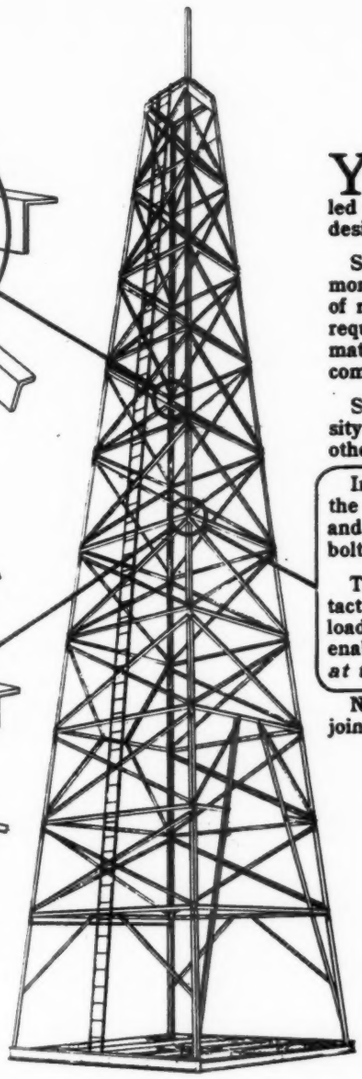
—Perfected
—Patented
—Reinforced



After the nuts are tightened, the joint is secure. Note butt-to-butt contact



Outside view of joint, with girts and braces in position



YEARS of oilfield experience with wide knowledge of every type of steel derrick led us to select a successful *structural* steel design and *improve* it.

Structural shapes are readily available in more sizes and weights than any other form of manufactured steel. Due to this, derrick requirements can be more closely approximated in *structural* shapes than in any other commercial shapes, *and at less expense.*

Structural shapes also eliminate any necessity for the costly connections required by other types of derricks.

In Parkersburg Structural Steel Derricks, the leg joint includes a combination of slots and holes so there is no need to remove bolts for dismantling or re-erecting.

The slots insure a solid, butt-to-butt contact between leg sections which carries the load straight down the derrick legs, and enables the structure to settle completely *at the time of erection.*

No danger of Bolts becoming loose in joints, every Bolt furnished with Lock Washer.

OUR DERRICKS ARE COVERED BY PATENTS

Patent Nos. 852486, 898027, 877624, 946815, 1090955, 1306793, 1341096

Other Patents pending

Ask our nearest representative for detailed specifications

PUMPERS
59′ 0″ x 20′ 0″
75′ 0″ x 20′ 0″

DRILLERS
81′ 0″ x 20′ 0″
88′ 0″ x 22′ 0″

The PARKERSBURG RIG & REEL COMPANY

Main Office and Works, Parkersburg, W. Va. ***New York Office,*** 30 Church St.

California Representatives, BUCK & STODDARD
485 California St., San Francisco, Calif.; Box 720, Arcade Station, Los Angeles, Calif.

District Offices and Distributing Warehouses from which Parkersburg Service is available

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Breckenridge
Corsicana
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Ranger

WYOMING
*Casper

LOUISIANA
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Cotton Valley
Haynesville

KANSAS
Eldorado
Madison

WEST VIRGINIA
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Smackover
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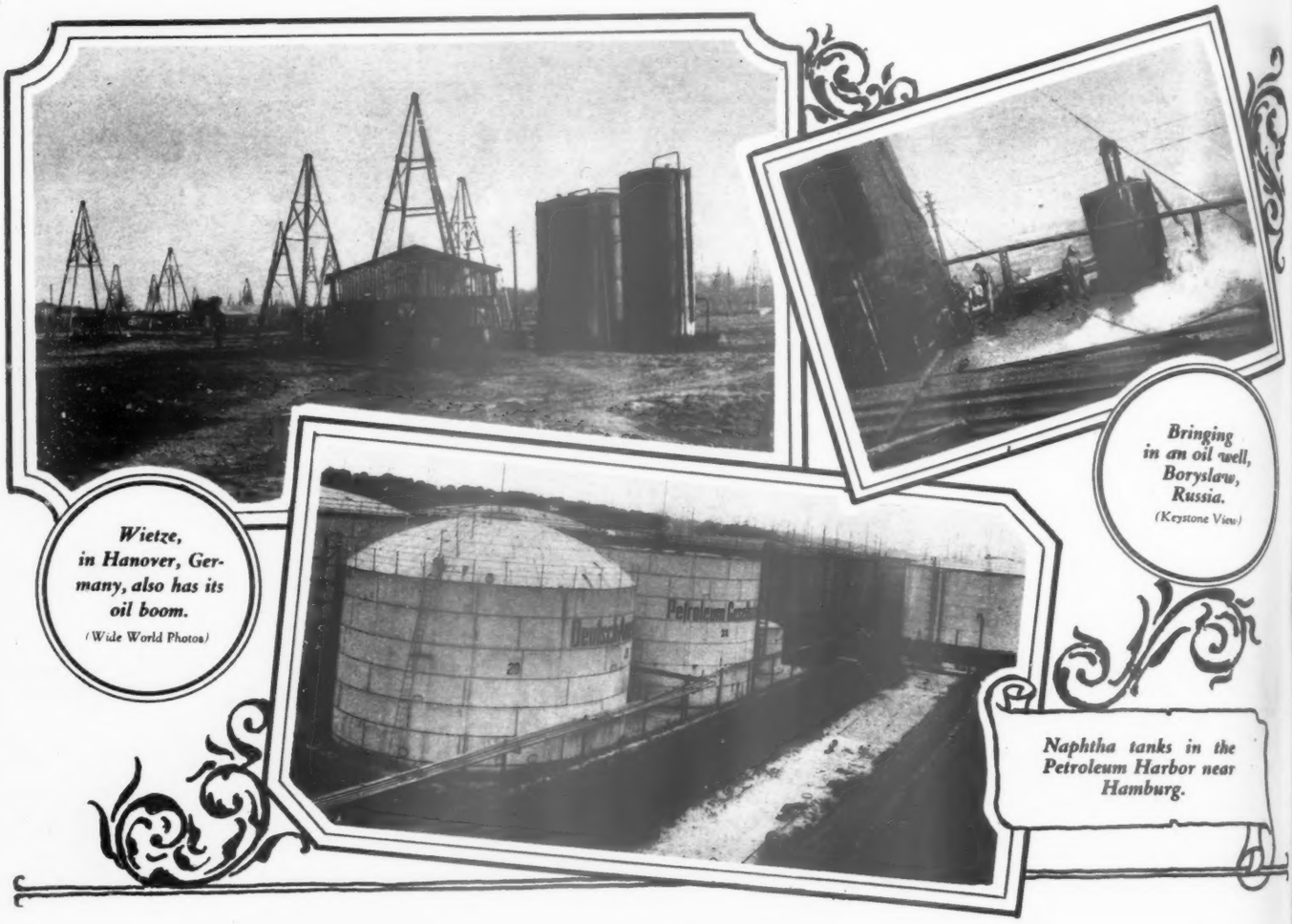


Wietze, in Hanover, Germany, also has its oil boom.
(Wide World Photos)

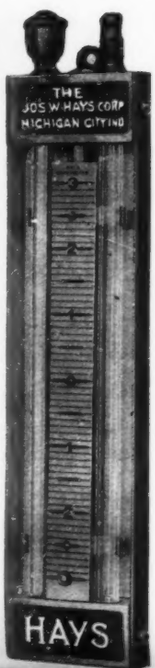
Bringing in an oil well, Boryslaw, Russia.
(Keystone View)

Naphtha tanks in the Petroleum Harbor near Hamburg.

The Refinery Supply Co.

Tulsa, Okla.

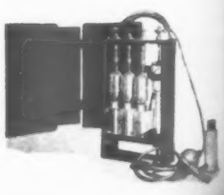
Largest Scientific Material House In the Southwest



Sole Agents for

THE JOS. W. HAYS CORP.

Hand Gas Analyzer, Draft Gauges,
CO_2 and Draft Recorders,
U Gauges, etc.



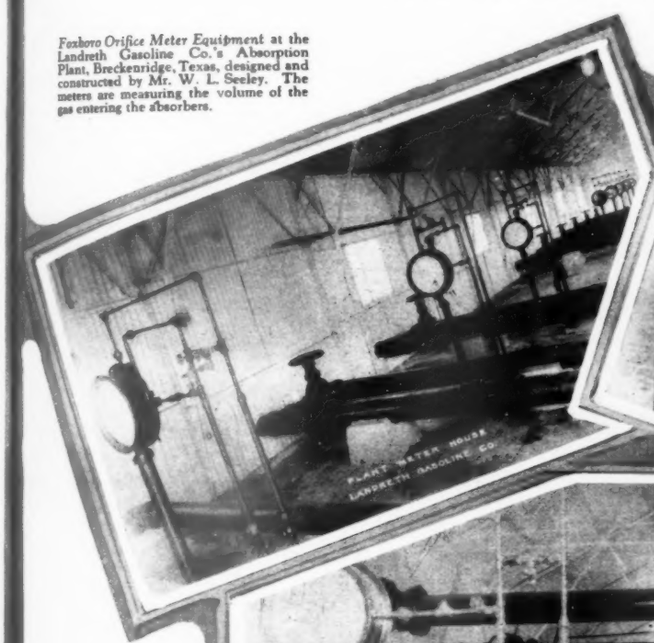
Foxboro Orifice Meters

THE need for dependable measurement of natural and casinghead gas, air, oil, steam and water has caused the majority of oil and gas men to standardize on *Foxboro Orifice Meters*. Accuracy under all conditions of service, freedom from maintenance troubles and unusual durability are back of this decided preference for *Foxboro Orifice Meters*.

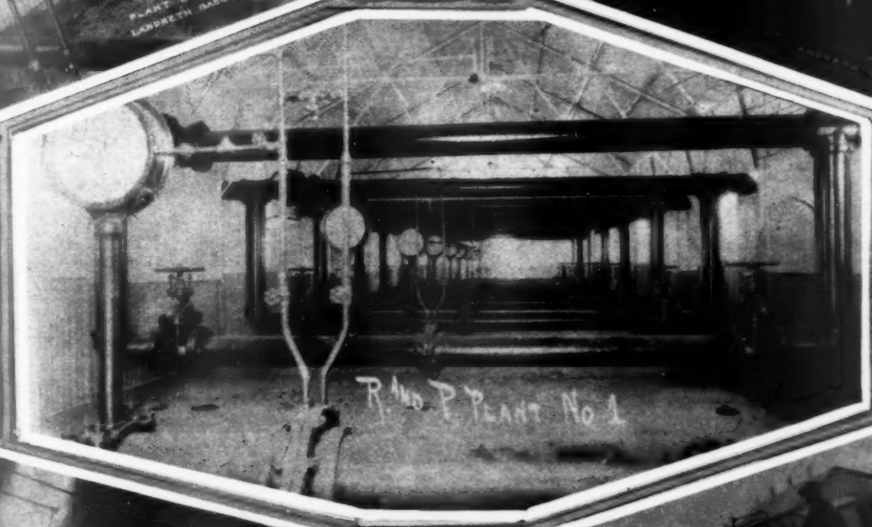
The first commercial orifice meter ever made was designed and built by Foxboro engineers. In improvements of design and construction the *Foxboro Orifice Meter* is still first in the field.

Let us send you Bulletin O-113-1 giving complete information.

Foxboro Orifice Meter Equipment at the Landreth Gasoline Co.'s Absorption Plant, Breckenridge, Texas, designed and constructed by Mr. W. L. Seeley. The meters are measuring the volume of the gas entering the absorbers.



Foxboro Orifice Meters measuring the exact amount of oil circulated through the absorbers at the Landreth Plant. Together with the gas measurements exact control of the absorption process becomes possible and economy and efficiency are constantly maintained.



The above view shows part of the metering installation of the Roeser & Pendleton Gasoline Co.'s Plant at Breckenridge, Texas. *Foxboro Orifice Meters* are used exclusively throughout the plant.

A duplex installation of *Foxboro Orifice Meters* in the Mid-Continent Field. When the flow exceeds the capacity of the first meter the excess is automatically taken care of by the second by means of inserting a differential regulator in the line. This arrangement has proved very satisfactory where the range of flow is large.

One of the Midwest Refining Co.'s *Foxboro Orifice Meters* located at Salt Creek, Wyoming. All sorts of weather conditions and temperatures from 40 below to 100 above do not affect the accuracy of this meter.

FOXBORO
REG. U. S. PAT. OFF.
THE COMPASS OF INDUSTRY

THE FOXBORO CO., Inc.
Neponset Ave., Foxboro, Mass., U. S. A.
213 South Cincinnati Ave., Tulsa, Okla.

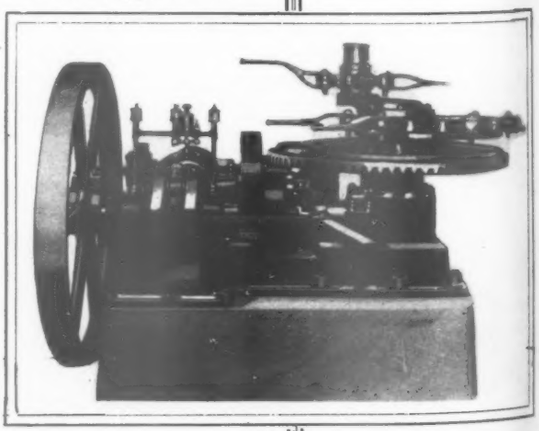
New York Chicago Boston Philadelphia Pittsburgh Cleveland
Rochester Birmingham Los Angeles San Francisco Portland, Ore.

7246

Hynes, Calif., Refinery of the Richfield Oil Company.

PATTIN
Combination Geared
POWER

Patent applied for



COME AND SEE OUR EXHIBIT AT THE PETROLEUM CONGRESS

You can more than save the cost of your trip on the first Pattin Power you buy and you will always have dependable power.

THE PATTIN BRO'S. CO.
MARIETTA, OHIO
BRANCHES: TULSA, OKLA. WICHITA FALLS, TEXAS

Improved Brass Items - *for the* OIL REFINER

Here are a few more leaders in the complete line of quality oil equipment products to be had at "Oil Equipment Headquarters."

The oil industry has no better nor more complete line of products than those bearing the "Morrison" mark. Since 1855 Made-By-Morrison has guaranteed quality manufacture. Morrison has come to mean more than the name of the foremost maker of oil equipment —it has become a warranty of unapproachable value.

Because the name Morrison has come to mean leadership in the oil equipment industry, we of Oil Equipment Headquarters are governed in every plan and operation by the unyielding motive to build and serve so well that we will ever continue to excel.

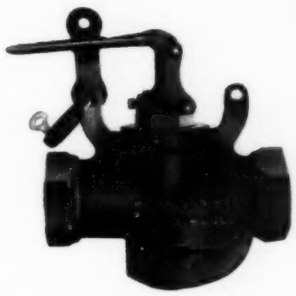
There are scores of other quality items in the Morrison line—brass items, tanks, truck tanks, pumps, etc. Write for literature and prices.

MORRISON BROS.
Box 1124-G, Dubuque, Iowa

Morrison Refinery and Oil Field Equipment for sale at all National Supply Co. Stores.

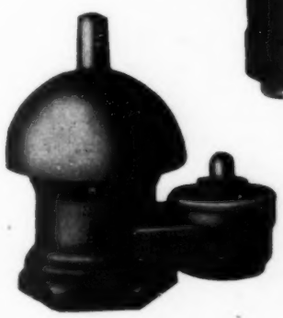
SWING JOINT—Quadruple bolt support on the packing gland. Strong, even pressure. No metal-to-metal contact—no wear. Durable and dependable.

AUTOMATIC VENT—For truck tanks, station storage tanks or large field tanks. Openings are full-volume of threaded pipe, allowing unrestrained flow. Cap easily removed for using measuring stick on field tanks.



QUICK-CLOSING LINE VALVE—Replaces the gate or globe valve. May be locked in open or closed position. Any part easily replaced. No metal-to-metal seat.

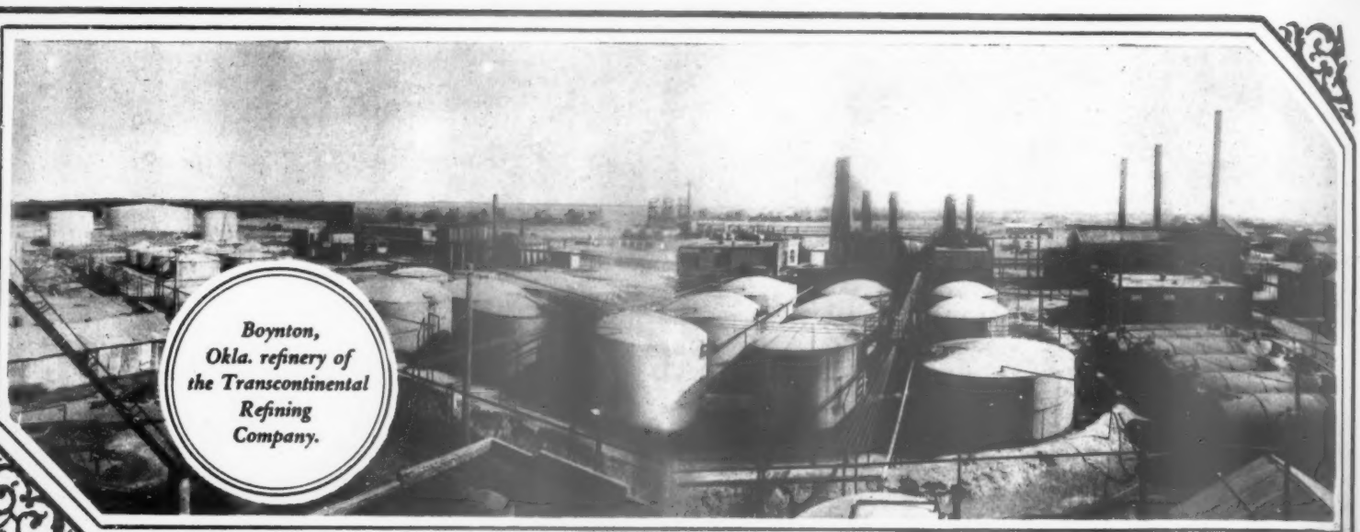
BY-PASS VALVE—Prevents damage should the pump be allowed to operate after a valve is shut off. Automatically opens and allows a run-around thru the pump.



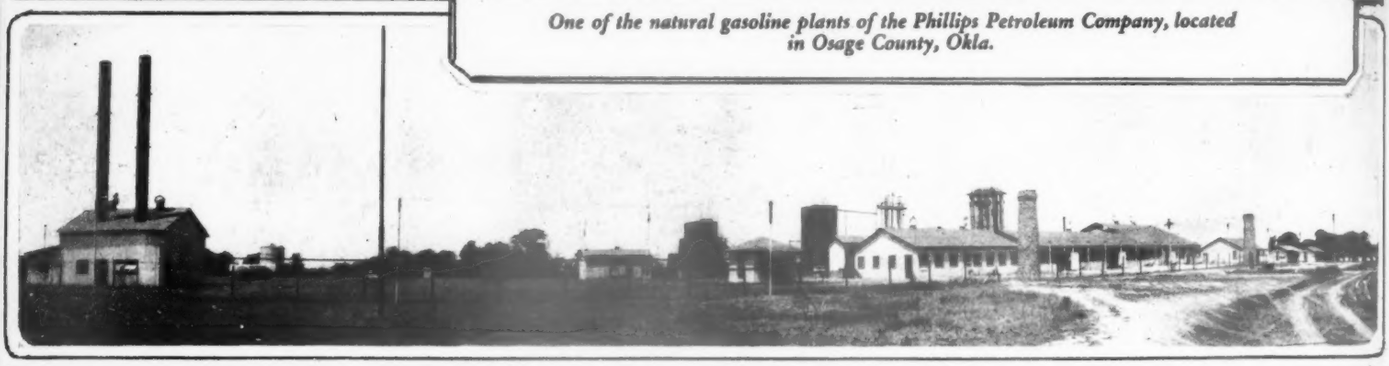
PRESSURE VENT—Prevents evaporation, also expansion. Allows rapid withdrawal of contents. Special design that insures positive safety. Widely used.

Morrison Bros.

"OIL EQUIPMENT HEADQUARTERS"



Boynton, Okla. refinery of the Transcontinental Refining Company.



One of the natural gasoline plants of the Phillips Petroleum Company, located in Osage County, Okla.

PRESCOTT MENOMINEE

A duplex type Prescott-Menominee Pump with forged steel fluid end. Capacity 25,000 bbls.

Pumps that lower pumping costs

Prescott-Menominee Station Pumps insure lowest cost of oil transportation because they operate dependably month in and month out, with minimum upkeep expense.

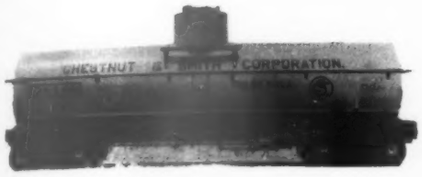
To a heavy, rugged design is added high grade materials and expert workmanship, making a pump of highest efficiency built especially for oil purposes.

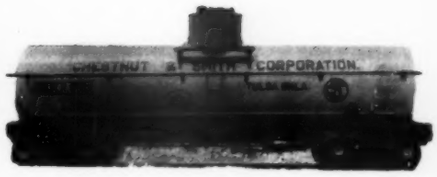
Highest plunger speeds are obtained without excessive friction in the fluid ends, due to straight passages and ample valve areas. The entire construction is simple and accessible, the specifications revealing the high standards of manufacturing practice under which they are built. Prescott - Menominee Pumps are built in many sizes and types, for either Diesel or electric drive.

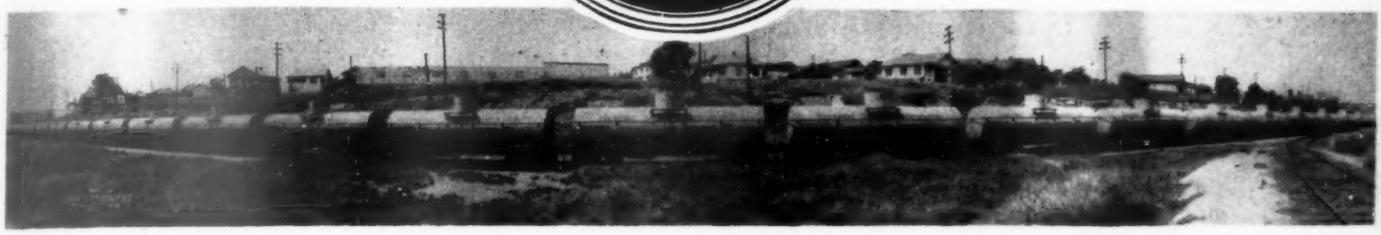
Write for descriptive bulletins.

The Prescott Company
Fred. M. Prescott, President
MENOMINEE, MICHIGAN

While at the International Petroleum Exposition we will be glad to see you at Booth 1 and 2 on Illinois Av.







Trains of Natural Gasoline

Solid trainloads, totaling thousands of Tank Cars are moving from our fourteen plants each month.

Our enlarged facilities are enabling us to dispatch this enormous volume with promptness, the railroads giving the trains passenger schedules.

In 1919, our twenty-six small plants, produced 60,000 gallons of natural gasoline per day.

Today, our fourteen enlarged plants produce 240,000 gallons per day.

Our total shipments for the year will approximate 75,000,000 gallons.

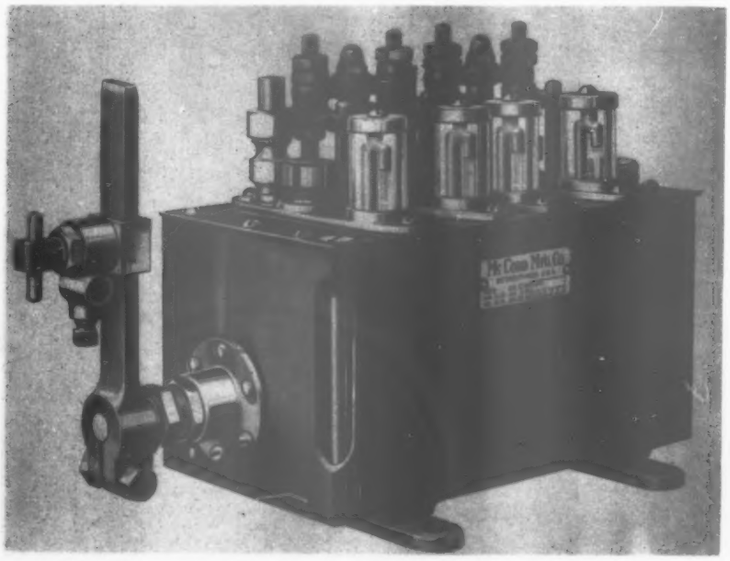
CHESTNUT & SMITH CORPORATION

GENERAL OFFICES ~ CHESTNUT & SMITH BLDG. ~ TULSA OKLA.

Gainesville, Texas, Refinery of the Producers Refining Company

McCORD CLASS "B" FORCE FEED LUBRICATORS

"Standard of the Oil Industry"



Sold by
NATIONAL SUPPLY CO.
All Branches

McCORD RADIATOR & MFG. CO., LUBRICATOR DIVISION DETROIT, MICH.

Omar
Refining Co.

TODAY
presents an opportunity

QUOTH OMAR KHAYYAM:

Ah, but my Computations, People say,
Reduced the year to better reckoning?—
Nay,
'Twas only striking from the Calendar
Unborn Tomorrow and dead Yesterday.

Today motorists are more willing than ever to pay well for EXTRA gasoline performance, and would rather have the Genuine Straight Run High Test Gasoline than "doctored" substitutes.

Get this profitable business NOW with Omar Straight Run Gasoline. Like Omar Khayyam suggested—"strike from your Calendar Unborn Tomorrow and dead Yesterday"—start TODAY. Let us quote you.

OMAR REFINING COMPANY
General Offices:
Roberts Bldg., Tulsa, Okla.

Okmulgee, Okla., Refinery of the Empire Refineries, Inc.

Tiger Mountain Oil Company

Natural Gasoline

Oil **Gas**

General Offices

Fourth Floor Commercial Bldg. *Tulsa, Okla.*

PHILLIPS
HIGRADE
PRODUCTS
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PRODUCERS REFINERS MARKETERS
TULSA, OKLA.
Philip L. Mansfield
1924

Ponca City, Okla., Refinery of the Transcontinental Refining Co.

Indian Territory Illuminating Oil Company

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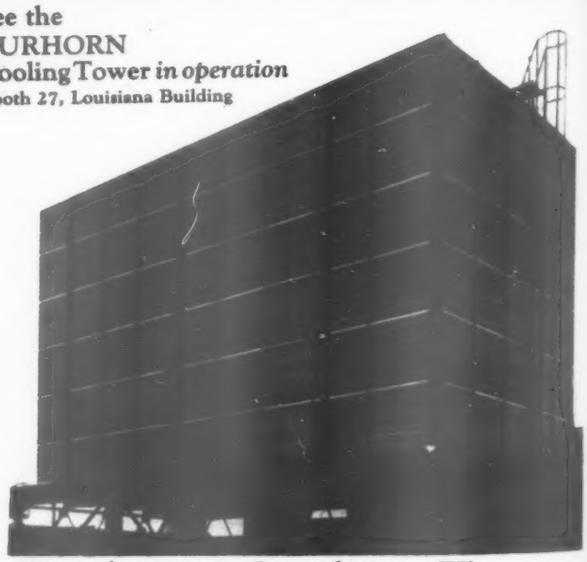
Westerly Oil Company

Delmar Oil Company

Producers of petroleum and natural gas

Bartlesville, Oklahoma

See the
BURHORN
Cooling Tower *in operation*
Booth 27, Louisiana Building

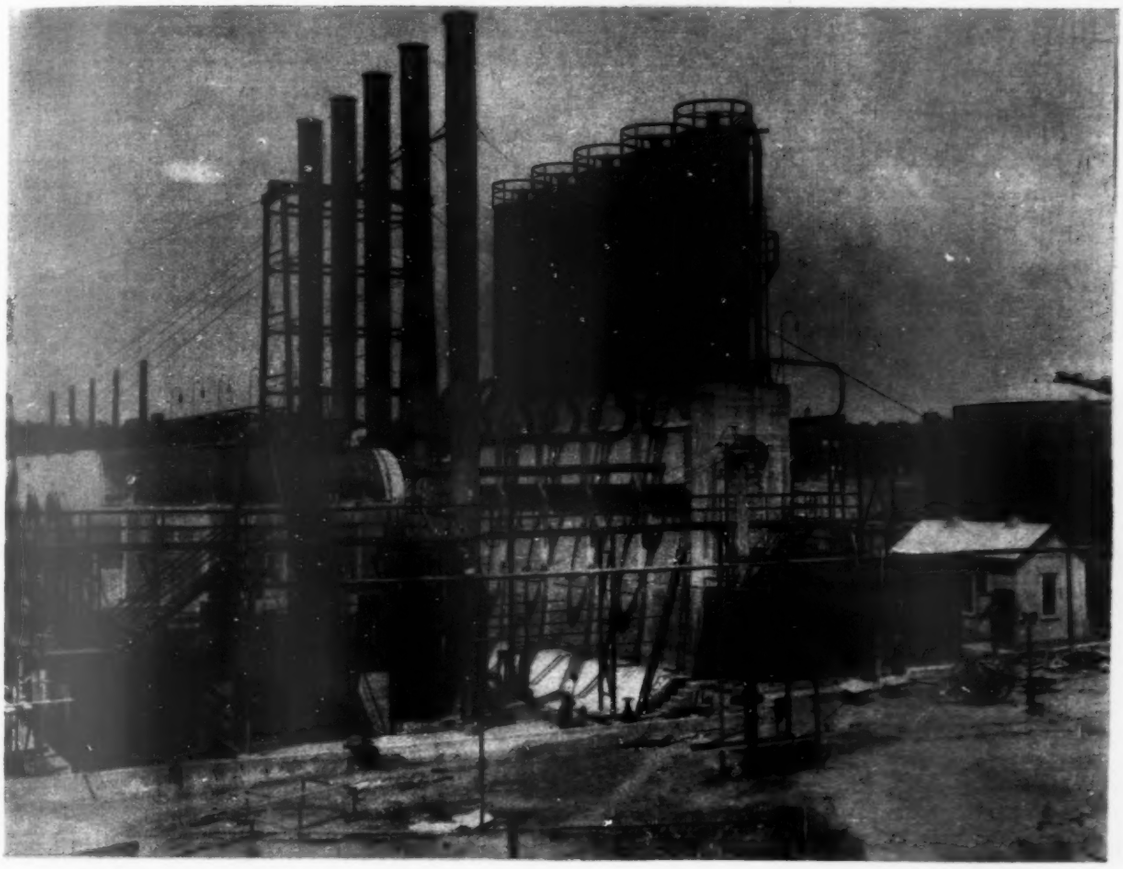


Burhorn Cooling Tower

Jersey Ice Cream Company, Chicago, Illinois

Owner says this BURHORN tower saves $200.00 per month and reduces their head pressure 50 lbs. Why not increase the efficiency and profits of your plant?

EDWIN BURHORN COMPANY
25 West Broadway, New York City, N. Y.
PHILADELPHIA, PA. CHICAGO, ILL.



Pressure Stills Drumright Refining

TIDAL REFINING COMPANY

Manufacturers of

Motor Fuel Natural Gasoline Gas Oil Fuel Oil

TIDAL OIL COMPANY

Producers of Petroleum

Tidal Building Tulsa, Oklahoma

Subsidiaries of

TIDE WATER OIL COMPANY

Manufacturers of

Veedol Forzol Tydol

11 Broadway New York, N. Y.

One of the natural gasoline plants of the Phillips Petroleum Company, located in Osage County, Okla.

Bristow, Okla. refinery of the Transcontinental Refining Co.

Fort Worth, Tex. refinery of the Transcontinental Refining Co.

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Tret-O-Lite salesmen are without exception experts in the science of treating petroleum emulsions by the chemical method, on which we hold process patents.

The Exposition will offer you an opportunity to meet our men and learn at first hand about this remarkable treating process which is yearly recovering millions of dollars worth of petroleum. *Visit us at* **Booth No. 10 Louisiana Bldg.**

Wm. S. Barnickel & Company
St. Louis, Mo.

OFFICES AND PLANT:
Webster Groves,
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C. C. AVERILL
Houston, Texas

Tret-O-lite

NORRIS BROS

at Booth No. 40 Texas Bldg.

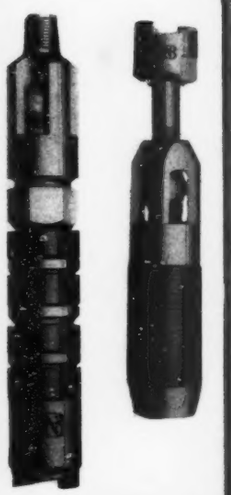
VISITORS who have come to the Exposition for the purpose of getting acquainted with the latest and most highly developed oil-industry equipment will not fail to pay a special visit to

Booth No. 40 in the Texas Building

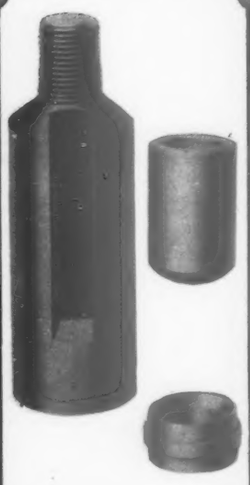
For 17 years the products of Norris Brothers have been constantly improved until today the Norris Brothers' mark is accepted in every field as an unfailing sign of supreme quality.

The articles pictured on this page are just a few of those that we manufacture. At our booth you will find a general line of pumping equipment, with special emphasis on valves and their accessories. You haven't seen the best in oil-field equipment until you have seen the Norris Brothers' line—and there is no better time to see it than at this Exposition.

NORRIS BROTHERS, INC.
Robinson, Illinois

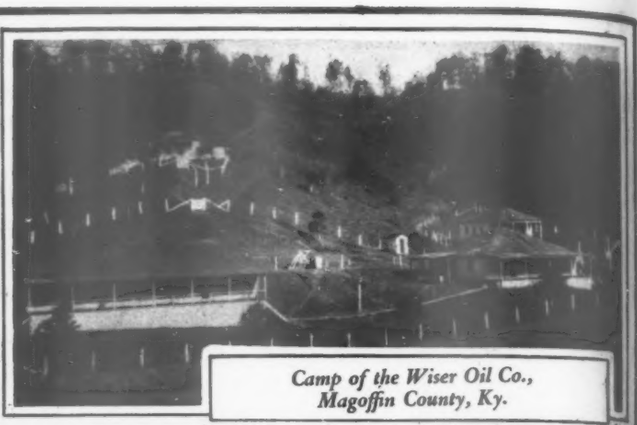


Norris Brothers Clutch - Type Standing Valve Puller. Saves a complete run of the rods, in and out, every time you pull standing valves. Pays for itself every time you use it.

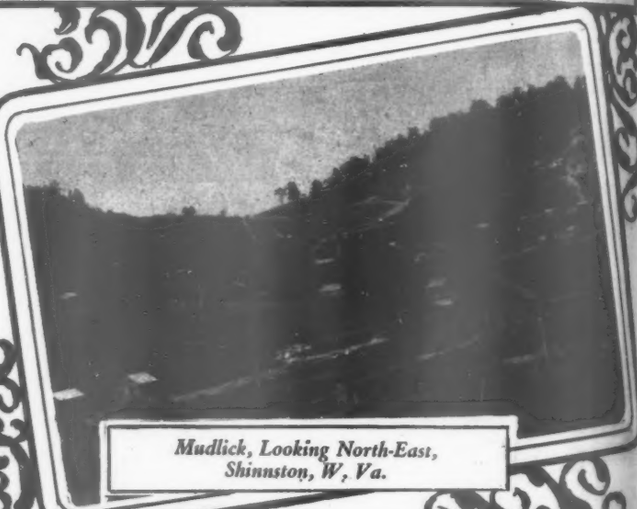


NO-CO-RO Drops and Seats —the highest stage in oil well check manufacture yet attained. So dependable we guarantee them to outlast three ordinary balls and seats.

NOR-BRO Bottom-Pour Babbit Ladle — the only ladle that will pour babbit or other metal clean and clear without skimming the dirt or dross from the top of the metal. Ventilated sleeve and heat shield protects hand.

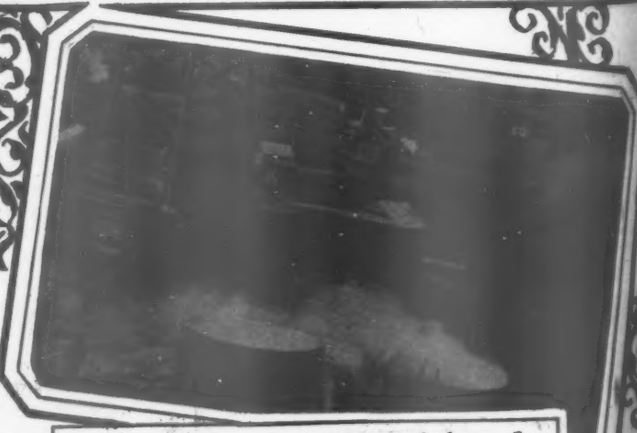


Camp of the Wiser Oil Co., Magoffin County, Ky.



Mudlick, Looking North-East, Shinnston, W, Va.

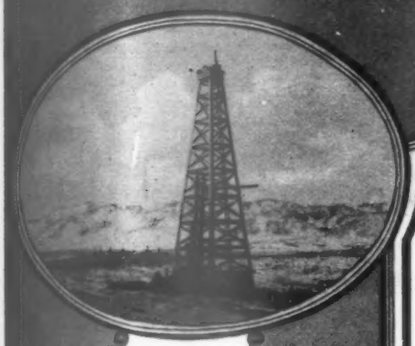
Oxen are a great help in Kentucky.



Gas from flowing well during early-day development, Shinnston, W. Va.

PRODUCERS AND REFINERS CORPORATION

Producing-Refining-Transporting-Marketing



200,000 Acres of Leases

Three Great Refineries

At The Exposition

Producers and Refiners Corporation will have a fine exhibit.

"P & R" today ranks as the foremost big independent producer in the Rocky Mountain Territory.

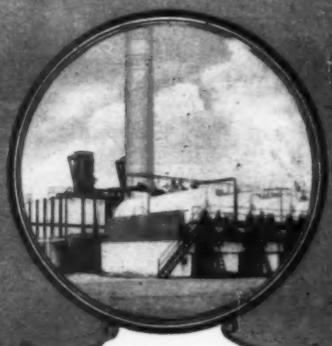
We want to meet you. Visit us at Booths 8, 9, 10, 17, 18.

"From Well to Consumer"

PRODUCERS AND REFINERS CORPORATION

Denver Chicago Tulsa Omaha Salt Lake City Memphis

500 Miles of Pipe Lines



Crude Stills, West Tulsa Plant

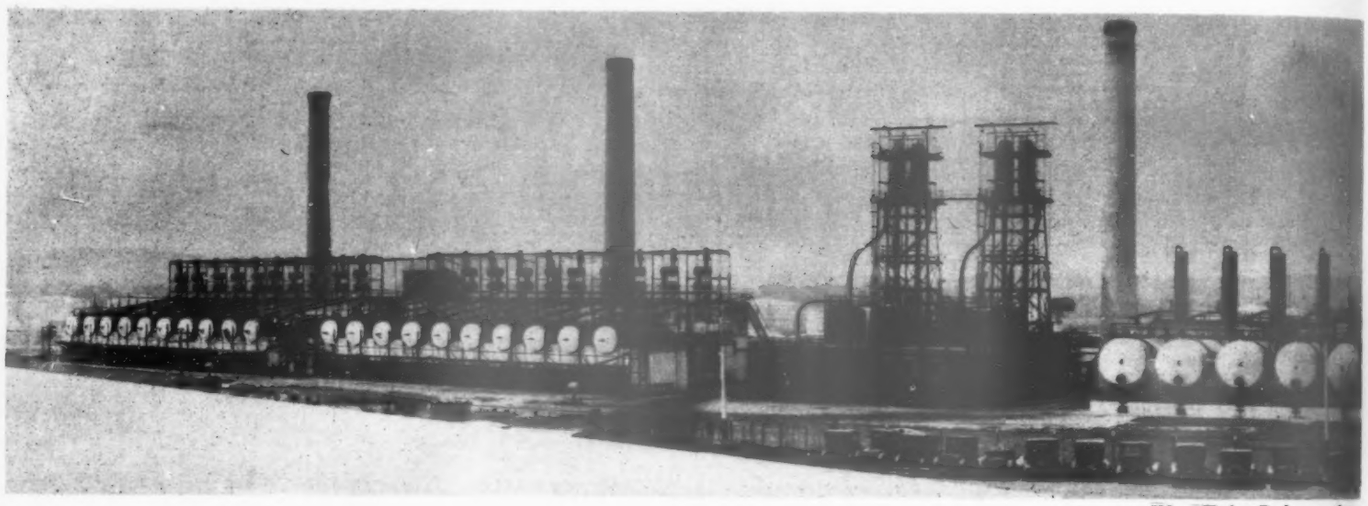
Modern Gasoline Plants

Nearly 1,000 Tank Cars

PARCO PETROLEUM PRODUCTS

PARCO

Compression Natural Gasoline Plant of the



West Tulsa Refinery of the

Marquette Oil Corporation

and

Gladys Belle Oil Company

Producers of
Oil and Gas

Operating in the following states

Oklahoma	Texas
Kansas	Arkansas
Louisiana	Montana

Offices
Atlas Bldg., Tulsa, Okla.

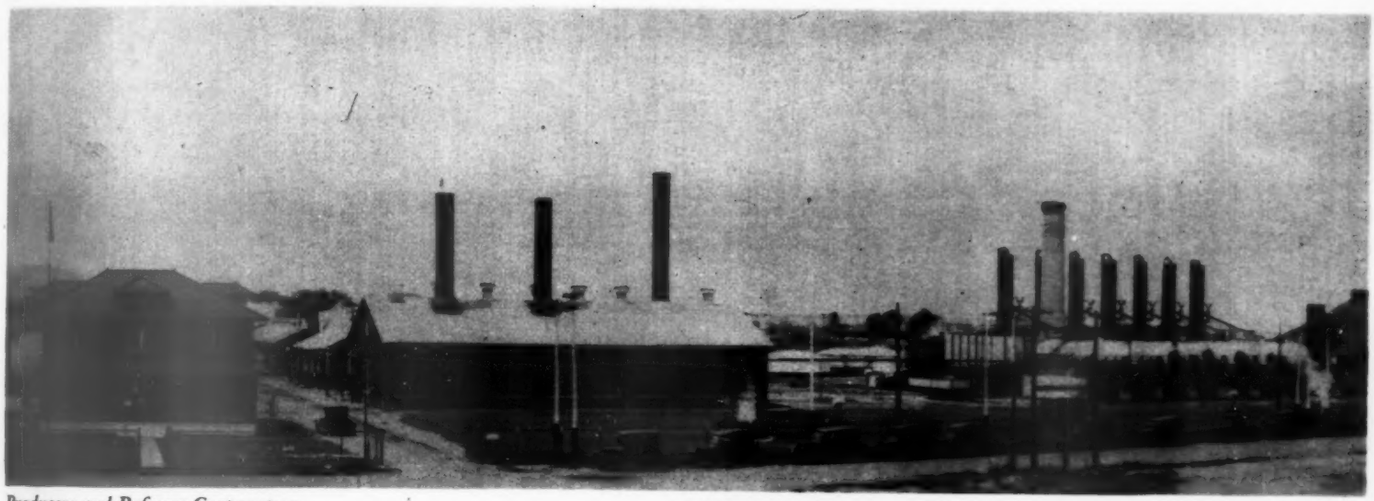
INDEPENDENT OIL AND GAS COMPANY

Sixth Floor Commerce Bldg.

Okmulgee, Oklahoma

OIL AND GAS
PRODUCERS

Sinclair Oil and Gas Co., located at Covington, Okla.



Producers and Refiners Corporation.

Red Bank Oil Company

OPERATORS

Tulsa ∴ ∴ Oklahoma

The First National Bank

in

Bartlesville, Oklahoma

Capital and Surplus

$500,000.00

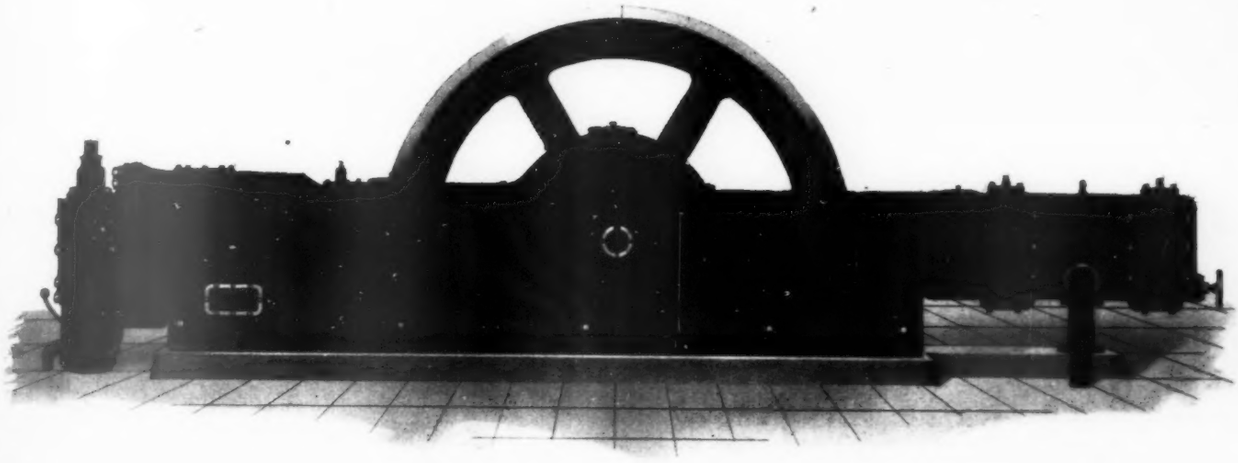
We have been serving the oil fraternity for more than twenty years. Let us serve you

Refinery of the Imperial Refining Company located at Ardmore, Okla.

Interior view of the Covington, Okla. plant of the Sinclair Oil and Gas Company showing compression and vacuum units.

Refinery of the Oklahoma Producing and Refining Company (Pure Oil Co.,) Muskogee, Okla. The refinery is one of the oldest in the state.

Not-An Ordinary Engine



is what you'll say when you see Watt's-Miller Gas Engine Driven Gas Compressor

We put the best that is possible in Watt's-Miller Gas Engines—the best is none too good.

Two kinds of material are used in industrial purposes.

No. 1—The best that can be had.

No. 2—The kind that can be had cheap.

That is why there are two kinds of GAS ENGINES.

No. 1—The best that can be had.

There is plenty of No. 2.

But do not ask us to compete with No. 2.

Making a price is not hard—cheap materials and cheap workmanship attend to that.

The Watt's-Miller demands something more.

It has as the basic element long experience in GAS ENGINE BUILDING.

The above MACHINE embodies the experience of years.

No detail has been overlooked.

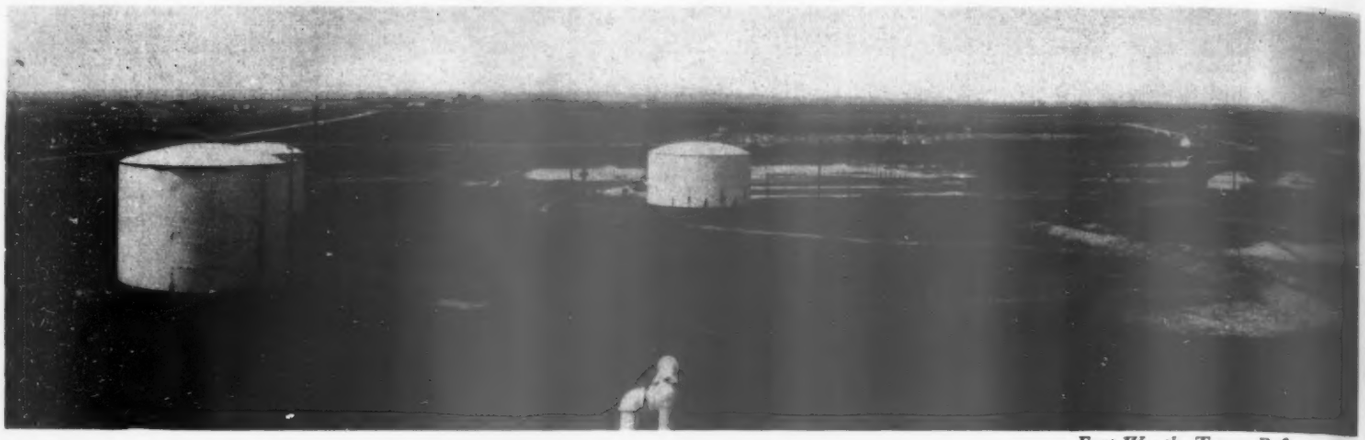
Every effort has been made to eliminate the human element.

The Watt's-Miller is no experiment—we have thousands in successful operation for 26 to 28 years on continuous 24 hour service.

This Machine will be at the International Petroleum Exhibition at Tulsa, Okla., Oct. 2 to 11, 1924.

THE MILLER IMPROVED GAS ENGINE COMPANY

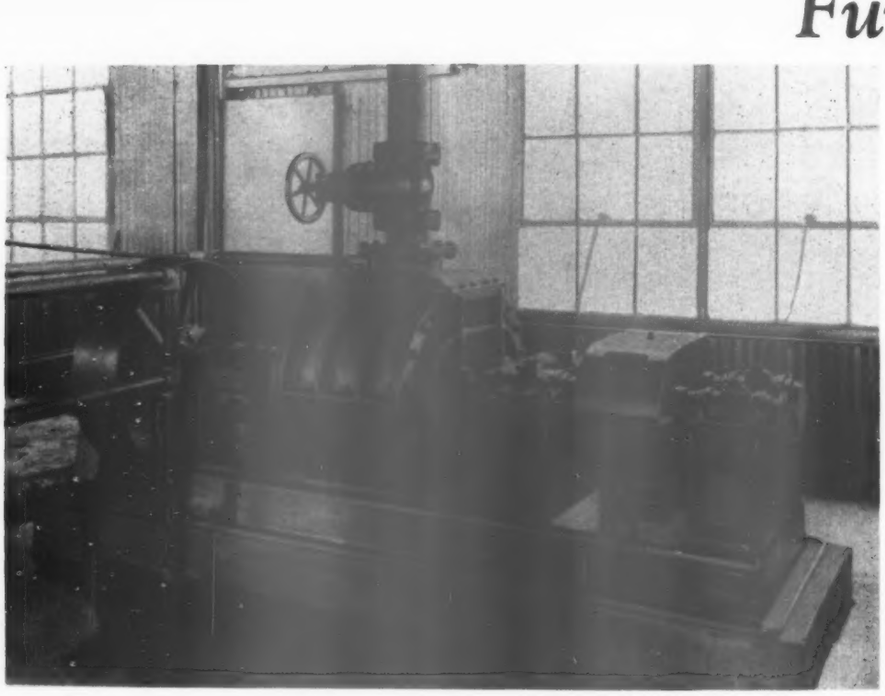
SPRINGFIELD, OHIO



Fort Worth, Texas, Refinery of the

Barnsdall, Okla., Refinery of

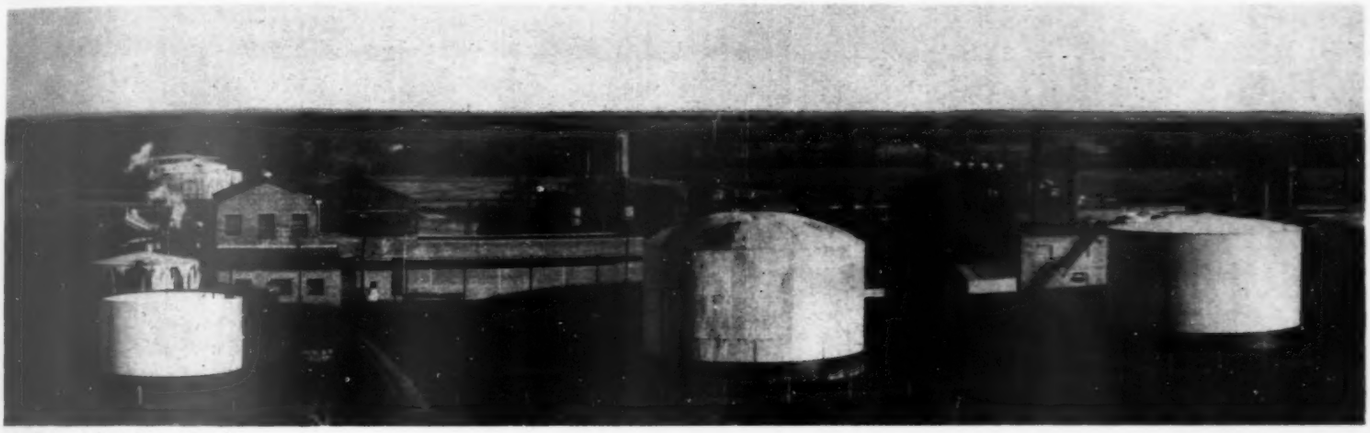
Further Steps



Installation at the plant of the Barnsdall Refining Co. showing a Roots Rotary Gas Pump in service.

ROOTS

White Eagle Oil & Refining Co.



the Barnsdall Refining Corp.

Toward Increased Profits

UTILIZATION of uncondensed still vapors for fuel after passage through absorbers is a practical possibility with Roots Rotary Gas Pumps. Refineries can also greatly increase the capacity of their compressors by delivering the natural gas to them at a pressure above atmospheric with Roots Gas Pumps.

Large refineries have proved these facts by installing Roots equipment. Small refineries can adopt the practice as a means of lowering costs and securing more profitable returns from their operations. In addition to Roots Rotary Gas Pumps there are Roots Pumps for handling every petroleum liquid from casing-head gasoline to tar, thus rendering a complete pumping service to the petroleum industry.

Come to Roots with your pumping problems—our engineers will gladly co-operate with you.

These bulletins are the keys to low cost pumping service:

107-108 Roots Rotary Gas Pumps for still vapor recovery, pumping natural gas to compressors, etc.

111 Roots Positive Displacement Gas Meters.

113 Roots Rotary Pumps, the only successful pump for gasoline, tar, crude, refined, and heavy oils.

114 Roots Rotary Vacuum Pumps.

118 Engineering Tables.

101-102 Roots Rotary Blowers for oil and gas burners and agitating oils.

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ROOTS

Absorption plant and booster station of Tidal Refining Company located in the Fox-Bush Field of Kansas

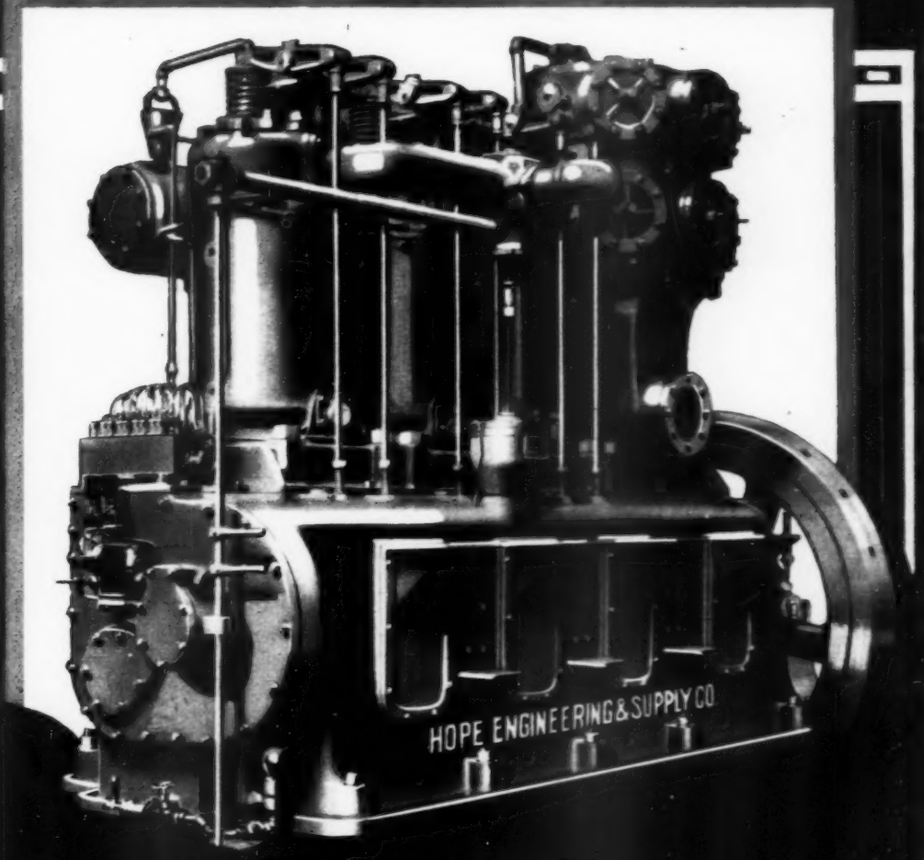
Hope experience and resources in pipe line construction have established unequaled records for speed and quality.

Hope Service

As engineers and contractors in oil and natural gas exclusively, the Hope Company offers to these industries a specialized experience of 20 years and a record of hundreds of successful operations carried to completion on time and right.

The Hope Company is the one organization in this field qualified and ready to assume "unit responsibility" for any operation, large or small, anywhere, from preliminary designs to delivery complete—in pipe lines for oil or gas, oil pumping stations, gas compressing and boosting plants, gasoline recovery systems, city and inter-city gas mains.

Hope-designed and Hope-built pipe line stations are operating at high economy in every field.



HOPE Vertical Gas Engines and Engine-Compressors

WHEREVER the minimum investment is sought, coupled with the maximum of capacity and an efficiency and economy unsurpassed—these are the units to use. They embody the very latest engineering practice and the most up-to-date improvements which make for sustained high-duty performance. Whether for power purposes or for gas compression, a Hope Vertical is the logical unit for any plant where the maximum return per dollar invested is sought.

ENGINEERS CONTRACTORS

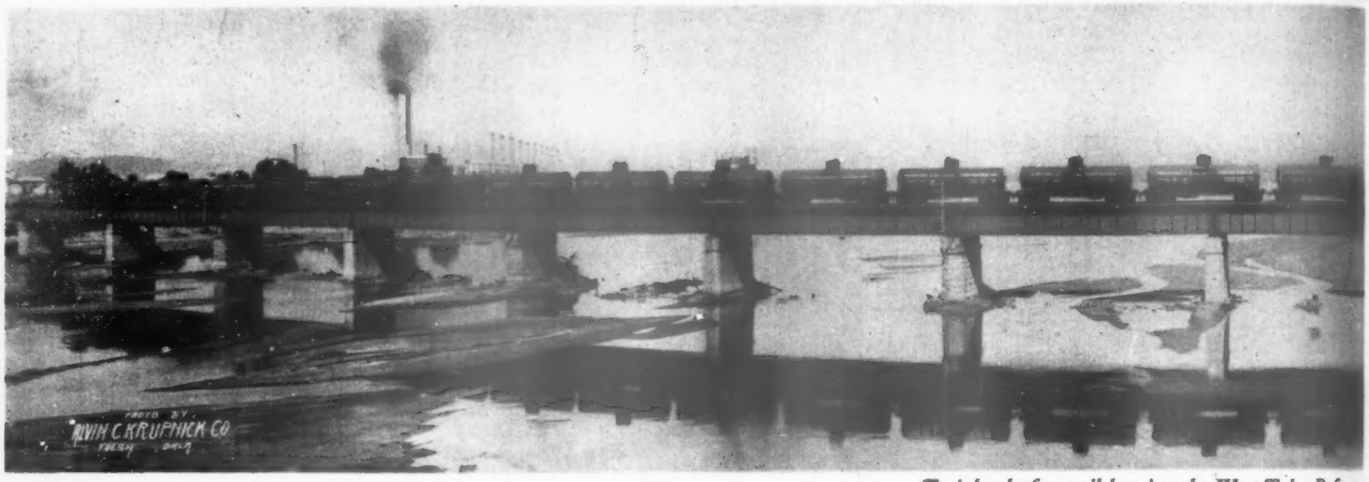
HOPE Engineering & Supply COMPANY

DESIGNERS MANUFACTURERS

MT. VERNON, OHIO, U. S. A.

H-5

Camp of the Sinclair Oil & Gas



Trainload of gas oil leaving the West Tulsa Refinery

This simple regulator can stand hard service

THE chances of working right are all against the complicated device, especially here in the field where things get such rough usage.

So the Davis Casing Head Gas Regulator is made sturdy and rugged. It has only one internal moveable part, a balanced bevel-seated disc with graduated port openings, which is securely coupled to a flexible diaphragm. The counterweight holds the valve open; the vacuum closes it. What could be simpler?

Tell us where you are so we can mail you the free catalog. Address the G. M. Davis Regulator Co. at 409 Milwaukee Ave., Chicago.

DAVIS VALVE SPECIALTIES

STEAM SAVERS SINCE 1878

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GILLILAND OIL COMPANY

Tulsa, Okla.

Producers of Crude Petroleum

and

Natural Gasoline Manufacturers

Company, located at Ranger, Texas.

of the Producers and Refiners Corporation.

Crude Oil Treating Plant of The Acme Crude Oil Treating Company of Tulsa, Oklahoma

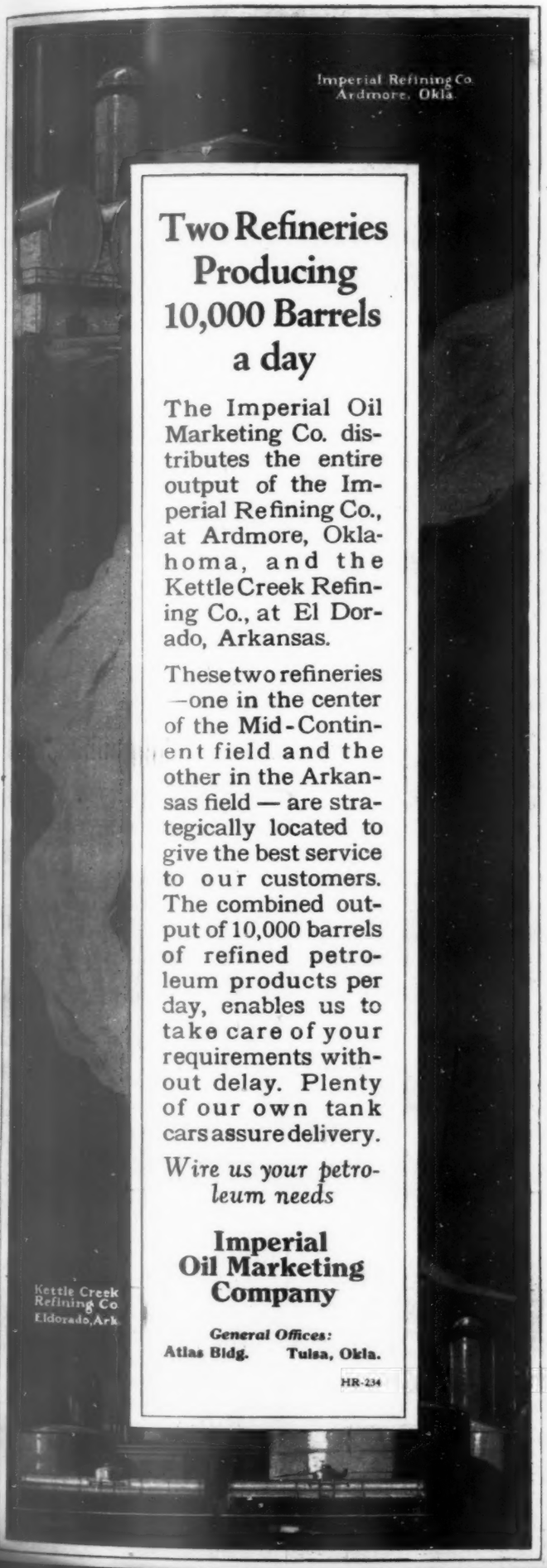
The above plant treating sixteen hundred barrels per day has been installed on the Marland lease, seven miles west of Hominy. This company has also installed a plant for the Dixie Oil Company on their Smith contract lease at Wewoka, and has also installed a No. 1 and 2 plant for the Texas & Pacific Coal & Oil Company in the Robinson Field south of Ardmore, all of which are working successfully and are certified to by these companies.

ACME CRUDE OIL TREATING COMPANY

632 Mayo Bldg. Tulsa

Airplane View of Refinery of Cosden & Co. at West Tulsa.

—Copyrighted by Ed. L. Miller, Bass Studio, Tulsa, and D. A. McIntyre.



Two Refineries Producing 10,000 Barrels a day

The Imperial Oil Marketing Co. distributes the entire output of the Imperial Refining Co., at Ardmore, Oklahoma, and the Kettle Creek Refining Co., at El Dorado, Arkansas.

These two refineries —one in the center of the Mid-Continent field and the other in the Arkansas field — are strategically located to give the best service to our customers. The combined output of 10,000 barrels of refined petroleum products per day, enables us to take care of your requirements without delay. Plenty of our own tank cars assure delivery.

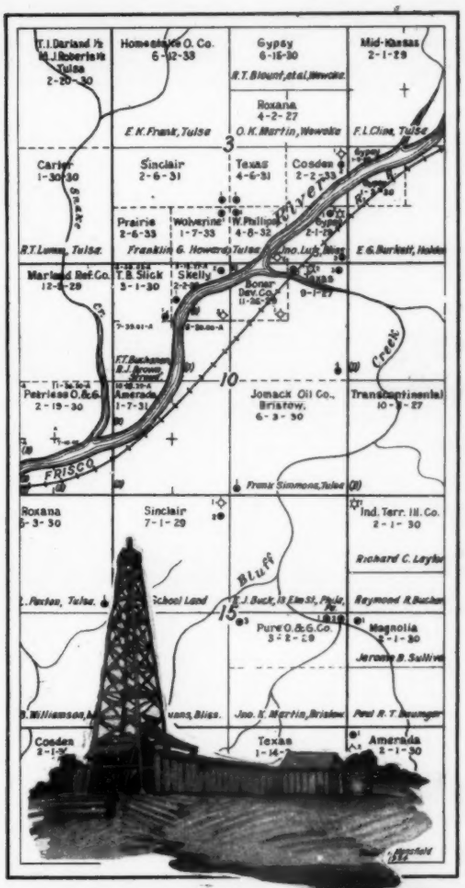
Wire us your petroleum needs

Imperial Oil Marketing Company

General Offices:
Atlas Bldg. Tulsa, Okla.

HR-234

MAPS THAT RENDER A REAL SERVICE



ABSTRACT MAPS

SHOWING:

Lessees
Addresses
Royalty Owners
Oil Development
Expiration Dates
Departmental Information

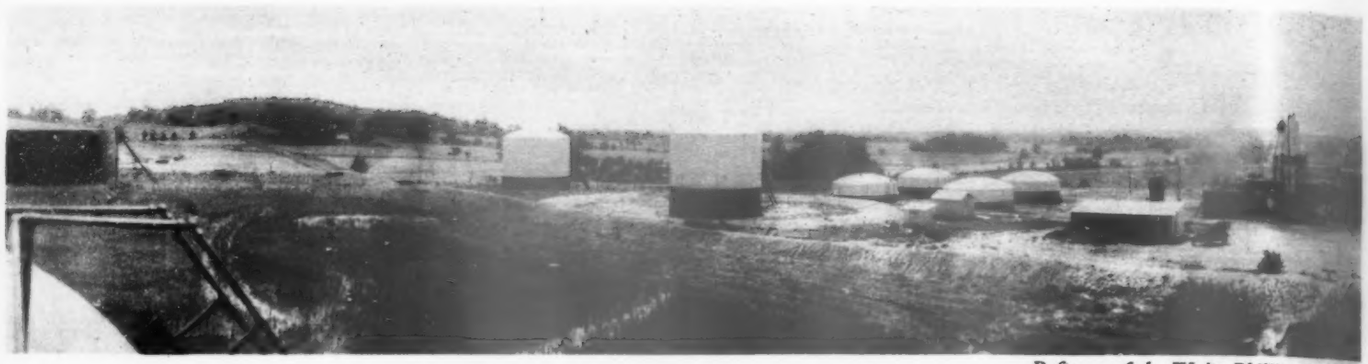
INFORMATION ALWAYS UP TO DATE

MIDCONTINENT MAP Co

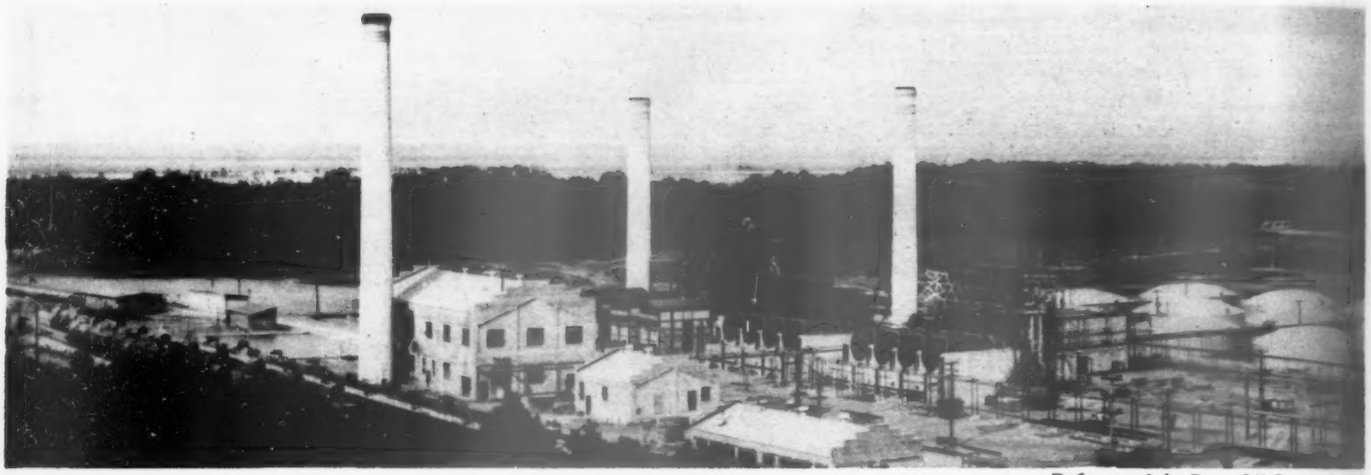
NATIONAL BANK OF COMMERCE BLDG.

TULSA

LARGEST ORGANIZATION OF IT'S KIND IN THE WORLD



Refinery of the Waite Phillips Company,



Refinery of the Pure Oil Company and

JOSEY OIL COMPANY

412-416 Mid-Continent Bldg.
Tulsa, Oklahoma

PRODUCERS
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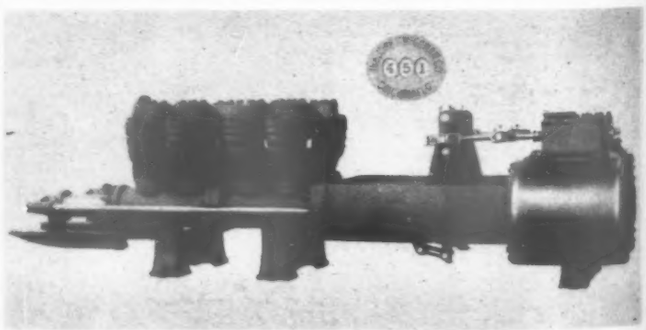
McGOWAN PUMPS

"The Standardized Line"

SINGLE AND DUPLEX STEAM AND POWER DRIVEN PUMPS—DUPLEX COMPOUND AND TRIPLE EXPANSION PUMPING ENGINES—CENTRIFUGAL AND ROTARY PUMPS



The large variety of pump combinations embraced in our line of production afford a wide range of efficient oil pumping units adapted for gathering, oil line pumping, loading, and for the various uses within the refinery. All types may be adapted for any form of power service preferred. Practical refinements in construction for oil pumping service have proven their value as preventive measures against leakage and interrupted service. Complete specifications furnished with all proposals.

Address Dept. L Engineering Division for further information or for recommendations, estimates or proposals.

THE JOHN H. McGOWAN CO.

General Offices, 54 Central Ave. CINCINNATI, OHIO

located at Okmulgee, Okla.

Humphrey interests Smiths Bluff, Texas

THE ROLAND OIL COMPANY

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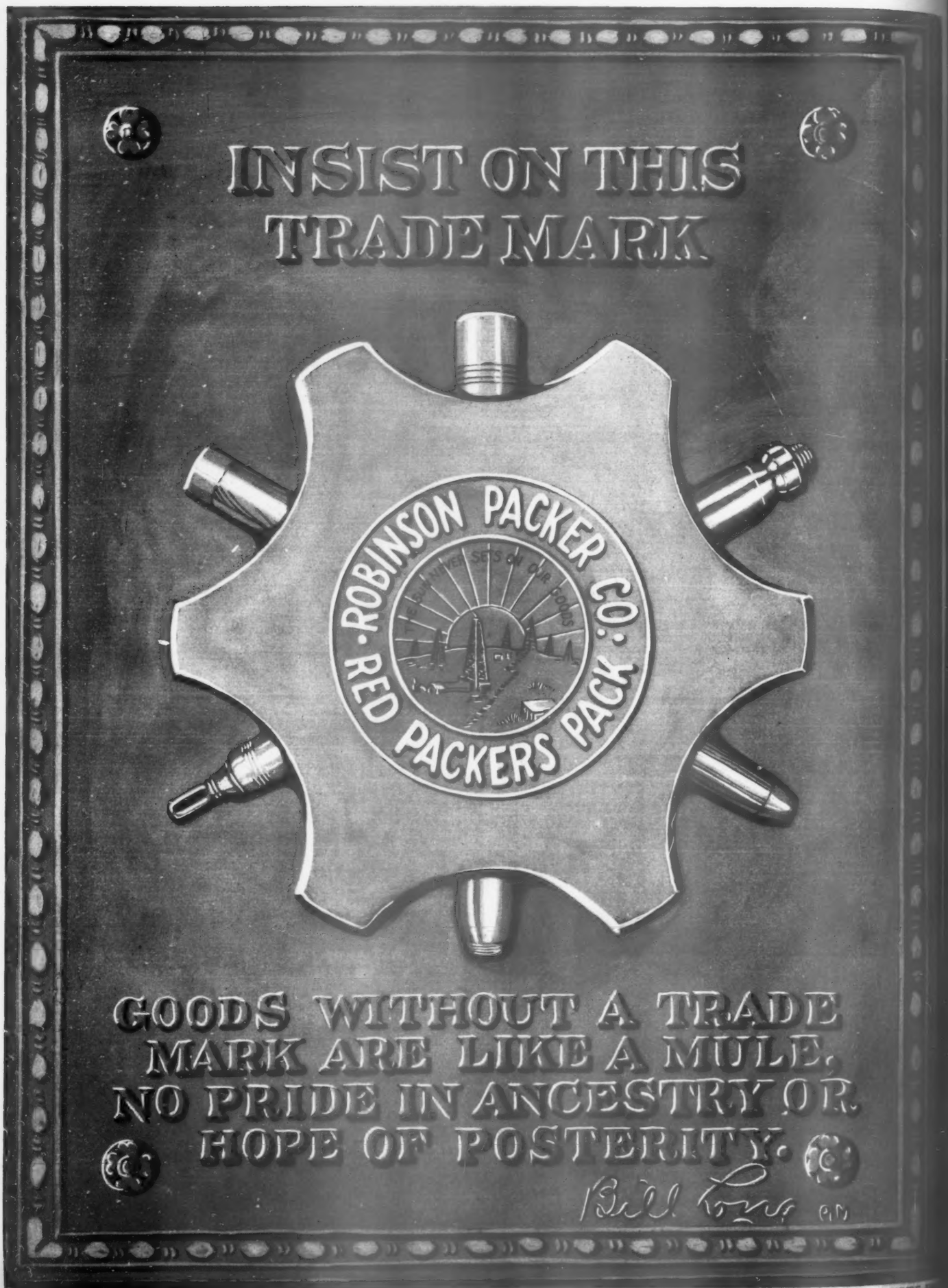
Stoves—Ranges—Heaters

Made in Tulsa by Tulsa capital and Tulsa labor, in a modern, up-to-date stove factory. Made in all the various styles and sizes—one to fit your home. See the QUEEN BEE display at your hardware or furniture dealers.

Made in Tulsa

Queen-Bee Stove Company
TULSA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ROBINSON PACKER CO.
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GOODS WITHOUT A TRADE
MARK ARE LIKE A MULE.
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Chester to Take His Case to the Public

Importance of Turkish Oil Concession to American Merchant Marine, Farmers and Industry in General to Be Stressed

By Charles E. Kern.

WASHINGTON, D. C., Sept. 22.—The rights of Americans to a Turkish oil concession covering the valuable petroleum deposits of Mesopotamia, are to be laid before the people of the United States, by means of a series of conferences and addresses to be delivered by Rear Admiral Colby M. Chester, U. S. Navy, retired, under whose name there was granted by the Turkish Government, valuable rights for the building of roads and the mining of petroleum and other minerals. These concessionary rights were obtained by Admiral Chester and the men associated with him and turned over to the Ottoman-American Development Company, an American Company incorporated in the State of Delaware.

By a series of events, including the acquisition of rights in the company's stock by Nationals of Great Britain, it came about, through arbitration proceedings, that Colonel Clayton-Kennedy came into control of 90 per cent of the stock of this company. Colonel Clayton-Kennedy, representing British interests, having failed to meet the terms of the arbitration decree, which required the raising of $300,000 of capital, caused this proceeding to be nullified and it is understood here that the entire concession granted about a year ago to the Chester party, is practically "in the air."

This situation brings the Turkish oil concession back to where it was about two years ago, with the Turkish Government and Parliament determined upon giving it to Americans, according to the belief of the Chester party, with the British and French interests working to establish rights to the Mesopotamian oil field by others means. They are represented as being at Anatolia in the pursuance of these efforts During two years, beginning with the Harding administration, Secretary Hughes made constant effort to have the British Government submit to arbitration the rights being claimed for its nationals under the old Turkish Petroleum Company, which, prior to the World War, entered into negotiations with the Turkish Government for oil rights in the rich Mosul region but never succeeded in concluding a concession. This was while the concessionary rights of Admiral Chester were in abeyance, because of interruption caused by pending hostilities.

Important to Americans.

The diplomatic correspondence on this subject, has been very voluminous. There has been pertinent comment in magazines and newspapers of this country. There has been much misunderstanding of the general situation in Turkey and of the rights obtained under the Chester concession; but, there has been very little interest manifested by any one in Congress in respect to these rights. A veil of mystery has been thrown about these transactions so far as has concerned the diplomatic exchanges between the United States and the British Government.

Now, for the first time, Admiral Chester and the people who have interested themselves in this concession, are proposing to take their case before the American people. In this enterprise, there has been spent a considerable amount of American money, the negotiations running over many years, calling for funds to pursue these rights. Not only has money been put up, but the idea that this valuable oil region should be taken over by an American Company, has been spreading. The Navy is deeply interested in it. It would permit the delivery of fuel oil for American naval vessels and for the American merchant marine at a port on the Mediterranean Sea within convenient distance of the entrance of the Suez Canal. This is exactly where re-fueling can most conveniently be done by vessels plying their way toward the Far East over this route. The United States Shipping Board sees the advantage of having such facilities established if our merchant marine is to compete on equal terms with the merchant marine of other countries. These are convenient reasons why such facilities should be given to an American Company, but the rights are in no way associated with these reasons. The rights go back to 1909 and the fact that the Turkish Government and Turkish Parliament desire to interest Americans and American capital has been shown by the fact that the Chester Concession was actually negotiated by the present Government of Turkey and ratified by the present Turkish Parliament. But just as it suits American convenience to follow up these valuable rights, so does it inspire other governments to support claim of their nations and efforts being made by them to defeat American claims.

Bring up Imbrie Case.

One of the latest reports concerning attempts of foreign interests to harass this American party, is connected with the recent murder of Robert Whitney Imbrie, killed by a fanatical Moslem mob at Teheran, Persia, in July. It will be remembered that Mr. Imbrie taking snap shots of some religious ceremonies inadvertantly created the impression that he was offering an indignity to the religious beliefs of the Moslems and he was set upon and murdered. The truth appears to be that Mr. Imbrie was a particular advocate of religious toleration. However, the idea that he was offending the Moslem faith has been made the most of by some people who desire to create that impression, not only in Persia, but also in Turkey, where there is the same strong religious feeling. Strange as it may seem, this incident is being used by hostile interests to prejudice American interests in Turkey with the idea that in some way Americans are hostile to the religion of the Moslems. The fact is this country has not shown any indication nor did Mr. Imbrie, of such feeling of intolerance. This instance illustrates how readily, in the great oil game, is every possible misrepresentation made the most of to do service.

Consul Imbrie was one of the most staunch friends of the Chester concession. He was widely known and liked among members of the Turkish Government and Parliament. He was thoroughly familiar with the entire matter of oil concessions in Turkey and was regarded as one of the most intelligent friends of that enterprise. He was fearless and many stories are told of him illustrating his ingenuity, courage and intelligence in looking after American interests in Russia at the height of Bolshevik domination. It was not in the diplomatic corps, but in the consular service, that he found ample opportunity to exercise his talents. His body is due to arrive in this country and it is likely that his funeral will be made the occasion of some testimonial of the splendid work he has done for the United States. Beginning to practice law in Baltimore, he soon yielded to the allurements of adventure, along the lines of duty. He served during the World War and was in constant danger in Petrograd. He served in Turkey also and was personally known to the Turks.

Admiral Chester will start out without any set and prepared speeches but will undertake to visit important centers where commercial interests have indicated a strong feeling in favor of the Turkish oil project. At these places, he will confer with people who have induced him to take up the fight before the public. His first stopping place will be Pittsburgh, whence he will go to Chicago, to Cleveland and other cities not yet determined. He will be ready to address meetings of serious men who wish to be informed in respect to the real nature of the opposition both as it has appeared in the open and in secret intrigue against efforts to maintain American rights to an oil concession in Turkey. Whatever may be the line of information most desired, it will be the effort of Admiral Chester to respond so that an understanding may be had among men of financial ability and with commercial interests of a broad nature to make them favor such an American enterprise.

All of this effort, very likely, will later be reflected in Congress. It will be remembered that at the session of Congress ending March 4, 1924, an appropriation was made, amounting to $136,000,000 for the construction or re-construction of oil burning ships, about one-fifth of which was for the merchant marine. This new construction will create a possibly larger demand for oil than do all of the 16,000,000 automobiles in the United States, according to the view of experts who have made their calculations on the probable demand of our Navy and merchant marine. This large supply of fuel oil must be met by foreign fields as the consumption in the United States is just about taking care of the production and if the consumption increases as rapidly as experts estimate, it will not be long before there is no oil for foreign demand. Those who make these estimates, declare that the large seagoing barges motored by oil power, now in operation on the Erie Canal, will consume a vast quantity of fuel oil. This is the only outlet to the sea by water from Chicago and the northwest, carrying products from Duluth to South America and most other parts of the world without breaking bulk. It is said in marine circles that this traffic soon will be augumented by larger and more powerful commerce carriers traversing these waters and Chicago in particular will be compelled to have on hand the oil necessary for them.

Remember Coal Bunkering.

Very soon, it is said, by some people in the merchant marine, we will have to purchase fuel abroad in very large quantities, so that in order to sustain the merchant marine, British oil bases, covering the seven seas of the world, will have to be resorted to. It is not any desire to take advantage in foreign shipping by a monopoly of Turkish oil for American interests that is impelling many people to support an American project in Turkey to uphold the rights legitimately acquired. Our merchant marine, however, cannot readily forget the history of coal bunkering abroad when coal was the fuel of commerce. In the files of some of our Government Bureaus there is the most ample proof that some foreign vessels could operate on rates that would be ruinous to an American merchant vessel, yet that foreign vessel would come through with a satisfactory profit on the voyage. It was simply a matter of obtaining coal. The American vessel paid more than the foreign vessel because the foreign vessel received a rebate on coal used. This was declared to be the condition in bunkering at Gibralter. Unless an oil bunkering station can be established in the Mediterranean by an American company, it may be expected that American ships will pay the same toll at the mouth of the Suez Canal, that they paid at the mouth of the Mediterranean Sea. There is no question in the world, according to Admiral Chester and members of what are known as the Chester group, that if there is proper national support of the Chester project, for a Turkish concession, the great oil fields of Mesopotamia will come under an American company and will supply the oil needs in that section of the world for many years to come upon such a fair and satisfactory basis that no country will have any reason to complain. They say it not only means much to the merchant marine, but back of that, it will be the greatest assistance to the American farmer, manufacturer and merchant as it will offer them a convenient means for delivering their goods to foreign ports.

These phases of the Mesopotamian oil fields are to be laid before the American public by Admiral Chester. It will be shown that what has been done by Americans in obtaining this concession, is for the benefit of American industry as a whole, and not for any special interest of any kind. This move

(Continued on Page 256)

Crude Petroleum Statistics for the Month of August, 1924

(Preliminary data, subject to revision, based on reports received up to September 24, issued by the Department of the Interior, through the Geological Survey.)

Production of petroleum in the United States during August, measured by the quantity transported from producing properties (61,684,000 bbls.), increased 601,000 bbls. over the output of July; imports (5,862,000 bbls.) decreased 640,000 bbls.; exports of crude oil (1,242,000 bbls.) decreased 166,000 bbls.; indicated deliveries to domestic consumers (60,871,000 bbls.) decreased 284,000 bbls. and at the end of August pipe line and tank farm stocks of crude petroleum (361,673,000 bbls.) had increased 5,433,000 bbls.

Although decreased production is reported for most of the States, the increase for the entire country was caused by large gains in Oklahoma, chiefly in the Tonkawa Pool, and by relatively small gains in Wyoming, Kansas, Montana, Colorado, and New York. Shipments from the Hogback Pool, New Mexico, marked the first pipe line runs from that State.

PRODUCTION

The figures given below for 1924 for the States east of California, compiled from reports made to the Geological Survey by companies that operate gathering lines, are preliminary and show the quantity of petroleum transported from producing properties. Petroleum consumed on the leases and produced but not transported from producing properties, ranging for the past few years between 4,000,000 and 9,000,000 bbls. annually, is not included in the preliminary figures. These items are given in the final statistics, which show all the oil brought to the surface. Current figures for California are those reported by the Pacific Coast office of the American Petroleum Institute. Final figures for California are compiled by the California State Mining Bureau. Data for 1923 are final and include oil consumed on the leases and net increase of producers stocks.

By States

(Barrels of 42 United States gallons)

State—	*July, 1924 Total	*July, 1924 Daily average	August, 1924 Total	August, 1924 Daily average	Jan.-Aug., 1924	Jan.-Aug., 1923
Arkansas	4,409,000	142,226	4,195,000	135,392	30,263,000	24,334,000
California	19,275,000	621,766	19,113,000	616,548	156,497,000	168,330,000
Colorado	47,000	1,516	75,000	2,419	165,300	56,300
Illinois	721,000	23,258	688,000	22,194	5,441,000	5,900,000
Indiana—						
Southwestern	62,000	2,000	55,000	1,774	457,000	545,000
Northeastern	26,000	838	23,000	742	192,000	161,000
Total Indiana	88,000	2,838	78,000	2,516	649,000	706,000
Kansas	2,423,000	78,161	2,693,000	86,871	18,748,000	19,560,000
Kentucky	676,400	21,819	615,700	19,861	5,011,700	5,445,400
Louisiana—						
Gulf Coast	202,000	6,516	192,000	6,194	1,472,000	1,645,000
Rest of State	1,583,000	51,065	1,582,000	51,032	12,320,000	15,927,000
Total Louisiana	1,785,000	57,581	1,774,000	57,226	13,792,000	17,572,000
Montana	244,000	7,871	283,000	9,129	1,749,000	1,948,000
New Mexico	.....	.....	19,000	613	19,000	.....
New York	111,800	3,581	112,000	3,613	889,000	778,000
Ohio—						
Central and eastern	419,000	13,516	401,000	12,935	3,154,000	3,288,000
Northwestern	181,000	5,839	169,000	5,452	1,382,000	1,442,000
Total Ohio	600,000	19,355	570,000	18,387	4,536,000	4,730,000
Oklahoma—						
Osage County	3,568,000	115,097	.....	.....	.....	27,296,000
Rest of State	11,190,000	360,976	.....	.....	.....	85,240,000
Total Oklahoma	14,758,000	476,073	15,650,000	504,839	109,843,000	112,536,000
Pennsylvania	671,000	21,645	635,000	20,484	5,029,000	5,134,000
Tennessee	600	19	300	10	4,300	5,600
Texas—						
Gulf Coast	2,161,000	69,710	2,106,000	67,935	16,996,000	21,291,000
Rest of State	9,217,000	297,322	9,120,000	294,194	72,307,000	54,189,000
Total Texas	11,378,000	367,032	11,226,000	362,129	89,303,000	75,480,000
West Virginia	523,000	16,871	487,000	15,710	3,989,000	4,309,000
Wyoming—						
Salt Creek	2,701,000	87,129	2,614,000	84,322	23,515,000	22,041,000
Rest of State	672,000	21,677	856,000	27,613	5,739,700	5,783,700
Total Wyoming	3,373,000	108,806	3,470,000	111,935	29,254,700	27,824,700
	61,083,000	1,970,418	61,684,000	1,989,806	474,783,000	474,649,000

By Fields

Field—	*July, 1924 Total	*July, 1924 Daily average	August, 1924 Total	August, 1924 Daily average	Jan.-Aug., 1924	Jan.-Aug., 1923
Appalachian	2,401,000	77,451	2,251,000	72,613	18,077,000	18,960,000
Lima-Indiana	207,000	6,677	192,000	6,194	1,574,000	1,603,000
Illinois and S. W. Ind.	783,000	25,258	743,000	23,968	5,898,000	6,445,000
Mid-Continent	32,390,000	1,044,847	33,240,000	1,072,258	243,081,000	226,546,000
Gulf Coast	2,363,000	76,226	2,298,000	74,129	18,468,000	22,936,000
Rocky Mountain	3,664,000	118,193	3,847,000	124,096	31,188,000	29,829,000
California	19,275,000	621,766	19,113,000	616,548	156,497,000	168,330,000
	61,083,000	1,970,418	61,684,000	1,989,806	474,783,000	474,649,000

*Revised.

STOCKS

Stocks of crude petroleum for statistical purposes are classified as follows:

1. Producers stocks—Petroleum held on the producing properties (lease or "field" storage). Producers' stocks are reported to the Geological Survey annually and are included in the survey's final statistics. Since 1919 producers' stocks east of California have ranged between 3,500,000 and 10,000,000 barrels.

2. Pipe line and tank farm stocks—Petroleum that has been transported from the producing properties but not delivered at refineries or at other points of consumption and is held on tank farms, in tanks along pipe lines, and in the lines. For the States east of California such stocks are reported monthly to the Geological Survey as gross stocks, including the total contents of tanks and pipe lines, and as net stocks, which are gross stocks minus sediment and water. The stocks reported for California are compiled by the Pacific Coast Office of the American Petroleum Institute and include producers', pipe line, and tank farm stocks (but not refinery stocks) of crude oil, residuum and tops.

3. Refinery and other consumers' stocks—Petroleum that has been delivered at refineries and at other points of consumption. Stocks of crude petroleum held at refineries are compiled by the Bureau of Mines. Data concerning stocks held by other consumers are not available.

Pipe Line and Tank Farm Stocks of Crude Petroleum on Last Day of Month (Barrels)

Stocks of domestic petroleum are reported by field or origin, not by location of storage. Domestic petroleum east of California, gross and net pipe line and tank farm stocks—

		July 31, 1924	August 31, 1924	August 31, 1923
Appalachian—				
New York, Pennsylvania West Virginia, eastern and central Ohio	Gross	6,825,000	6,658,000	6,472,000
	Net..	6,564,000	6,428,000	6,262,000
Kentucky	Gross	2,748,000	2,620,000	2,170,000
	Net..	2,627,000	2,509,000	3,041,000
Lima-Indiana	Gross	1,370,000	1,416,000	1,082,000
	Net..	1,146,000	1,192,000	845,000
Illinois-southwest Indiana & Mid-Continent—	Gross	11,537,000	11,683,000	11,532,000
	Net..	11,040,000	11,182,000	11,072,000
Oklahoma, Kansas, central and north Texas	Gross	187,541,000	191,630,000	166,248,000
	Net..	176,045,000	180,104,000	155,172,000
Northern Louisiana and Arkansas	Gross	29,023,000	28,252,000	28,067,000
	Net..	26,886,000	26,112,000	27,136,000
Gulf Coast	Gross	21,435,000	21,531,000	24,314,000
	Net..	21,035,000	21,106,000	23,942,000
Rocky Mountain	Gross	28,248,000	29,589,000	12,393,000
	Net..	28,226,000	39,571,000	12,367,000
Total pipe line and tank farm stocks east of Cal.	Gross	298,727,000	303,379,000	253,377,000
	Net..	283,569,000	288,204,000	239,836,000
California (as stated above)		67,181,000	68,601,000	63,240,000
Imported crude petroleum and topped oil topped in Mexico held in the United States by importers elsewhere than at refineries—				
At Atlantic Coast stations—crude petroleum		215,000	297,000	174,000
Topped oil topped in Mexico		3,692,000	3,275,000	2,340,000
At Gulf Coast stations—crude petroleum		984,000	796,000	819,000
Topped oil topped in Mexico		599,000	500,000	671,000
		5,490,000	4,868,000	4,004,000
Total domestic net pipe line and tank farm stocks east of California; producers', pipe line and tank farm stocks in California; and stocks of imported crude petroleum held in the United States by importers elsewhere than at refineries		356,240,000	361,673,000	307,100,000

Stocks of Crude Oil at Refineries in United States (Barrels)

(Bureau of Mines)

	June 30, 1924	July 31, 1924	July 31, 1923
Domestic	35,357,776	35,724,974	28,898,401
Foreign	5,142,243	4,244,957	5,372,461
Total crude oil	40,500,019	39,969,931	34,270,862

Imports and Exports of Crude Petroleum (Barrels)

(From Bureau of Foreign and Domestic Commerce)

	July, 1924 Total	July, 1924 Daily average	August, 1924 Total	August, 1924 Daily average	Jan.-Aug. 1924	Jan.-Aug. 1923
*Imports						
From Mexico	5,840,000	188,387	5,324,000	171,742	52,051,000	52,455,000
From other countries	662,000	21,355	538,000	17,355	3,068,000	2,212,000
Total	6,502,000	209,742	5,862,000	189,097	55,119,000	54,667,000
Exports—						
Domestic crude oil—						
To Canada	813,000	26,226	846,000	27,290	7,715,000	5,540,000
To other countries	561,000	18,097	298,000	9,613	4,175,000	5,226,000
Foreign crude oil	34,000	1,097	98,000	3,161	325,000	302,000
Total	1,408,000	45,420	1,242,000	40,064	12,215,000	10,978,000
Excess of imports over exports	5,094,000	164,322	4,620,000	149,033	42,904,000	43,689,000

*Including some topped oil.

Indicated Deliveries of Domestic and Imported Crude Petroleum to Domestic Consumers

(Barrels)

Based on formula—indicated deliveries equal production plus imports minus exports plus stocks (exclusive of consumers stocks) at beginning of month minus stocks at end of month.

Domestic petroleum by fields of origin—

	*July, 1924 Total	*July, 1924 Daily average	August, 1924 Total	August, 1924 Daily average	Jan.-Aug., 1924	Jan.-Aug., 1923
Appalachian	2,022,000	65,226	2,505,000	80,806	18,350,000	18,462,000
Lima-Indiana	145,000	4,677	146,000	4,709	1,357,000	1,451,000
Illinois and S. W. Ind.	709,000	22,871	601,000	19,387	5,807,000	5,521,000
Mid-Continent	30,186,000	973,742	29,955,000	966,290	229,769,000	196,094,000
Gulf Coast	1,704,000	54,968	2,227,000	71,839	21,336,000	23,791,000
Rocky Mountain	2,713,000	87,516	2,502,000	80,710	21,321,000	19,235,000
California	18,557,000	598,613	17,693,000	570,742	150,058,000	154,465,000
Deliv. and exports.	56,036,000	1,807,613	55,629,000	1,794,483	447,998,000	419,013,000
Expts. dom. crude oil	1,374,000	44,323	1,144,000	36,903	11,890,000	10,775,000
Deliveries	54,662,000	1,763,290	54,485,000	1,757,580	436,108,000	408,244,000
Imported petroleum	6,493,000	209,452	6,386,000	206,000	54,680,000	55,522,000
Deliveries of domestic and imported petroleum.	61,155,000	1,972,742	60,871,000	1,963,580	490,788,000	463,766,000

*Revised.

Days' Supply of Pipe Line and Tank Farm Stocks of Crude Petroleum

(Based on average daily rate for month of deliveries to domestic consumers and exports.)

July 31, 1924	August 31, 1924	August 31, 1923
177	187	144

***Number of Producing Oil Wells Completed**

July, 1924	August, 1924	Jan.-Aug. 1924	Jan.-Aug. 1923
1,593	1,389	10,355	11,370

*For States east of California, from The Oil and Gas Journal; for California, from the American Petroleum Institute.

Shipments of California Oil Through Panama Canal to Eastern Ports in United States

(From the Panama Canal Record)

(Compiled from declarations by masters of vessels; reported in tons of 2,240 pounds.)

	July, 1924	Aug., 1924	Jan.-Aug., 1924	Jan.-Aug., 1923
Crude oil—long tons	392,466	347,149	4,049,102	4,348,126
bls. approximately	2,865,000	2,534,000	29,559,000	32,071,000
Refined prods., long tons	49,714	148,964	472,337	310,519

DOMESTIC EXPORTS OF PETROLEUM AND REFINED PRODUCTS

	Month of August— 1924	Month of August— 1923	8 Mos. Ended August— 1924	8 Mos. Ended August— 1923
Petroleum, crude ..... gals.	63,441,270	48,035,167	452,551,989	502,274,837
$	2,000,490	1,629,534	15,615,769	18,091,247
Total refined petroleum ..... gals.	293,449,394	346,485,891	2,116,575,226	2,613,972,519
$	27,067,014	32,589,767	227,477,243	266,334,264
Gasoline, naphtha and other light products ..... gals.	76,789,191	108,845,380	561,893,432	789,879,620
$	11,885,103	14,706,375	99,921,670	116,000,202
Illuminating oils ..... gals.	79,548,150	66,956,168	542,544,546	586,189,115
$	6,736,985	6,958,041	51,897,943	58,095,337
Gas and fuel oils ..... gals.	114,762,945	141,651,739	774,313,481	973,459,291
$	3,191,584	4,541,804	23,258,226	31,632,461
Lubricating oils ..... gals.	22,349,108	29,032,604	237,823,767	266,444,482
$	5,253,342	6,383,547	52,399,404	60,686,982
Paraffin wax ..... pounds	23,771,038	26,917,121	218,320,059	258,544,377
$	831,829	1,369,763	7,559,687	11,918,284

GREASY WATER AFTER QUAKE?

Since the discovery of a "greasy water" source near Strasbourg, it is reported that boring is going to be energetically pursued by two separate companies at Sundhouse, on a territory known as the Reid. The Alsace and Lorraine papers are jubilant on the subject. It appears that out of a dozen ordinary wells which have been sunk for water during the past 12 months, no less than six of them have been so contaminated by petrol that they could not be used. This circumstance is all the more singular inasmuch as the wells in this district have always been noted for the remarkably good quality of water. The local experts attribute the appearance of oil to the recent seismic disturbances in the east.

UNDERGROUND WATER A GUIDE

Amongst other indications of the presence of petroleum in an untested area it seems that composition of the underground water is of considerable value. On this subject Captain E. de Hautpick has contributed the result of some of his own observations to the London Mining Journal, with special reference to the underground water of the Coorong district of South Australia. Petroleum, a powerful reducing agent, is always in an oxidizing environment. In its migration it meets at every stage sulphates, oxides, and other substances that remove some of its hydrogen. Experience shows that in every oil field the waters have a different chemical composition to the waters outside of oil areas.

See the Wilson Exhibit

NOW awaiting your inspection at the International Petroleum Exposition—Wilson Welding Machines. You will find them at Booths 10 and 11 in the New York Building. This is an excellent opportunity to make a thorough investigation of the Wilson machines and check up the manner in which they are serving the great oil industry. Especially should you learn about the control panel which assures constant heat per unit area in the weld.

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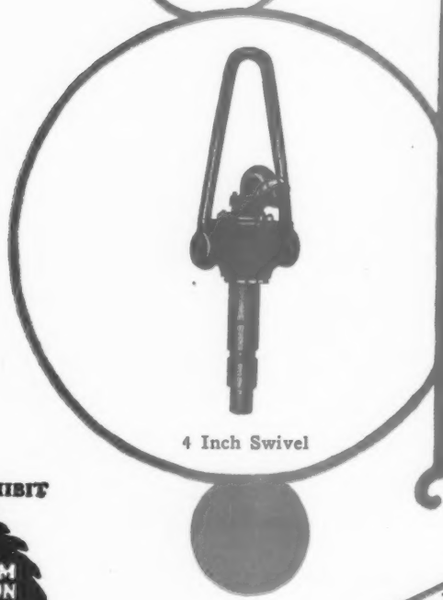
6 Inch Swivel



4 Inch Swivel

Some of the Advantages of the New

Lucey Rotary Swivel

1—This swivel built in two sizes—4 inch for use with 4 inch drill pipe in medium depth fields and 6 inch for use with 6 inch drill pipe in deep fields.

2—Has advantage of short overall length, light weight and compactness of design.

3—Note the few parts, the simplicity of packing and adjustment.

4—First swivel built with Timken Roller Bearings. Bearing construction approved by Timken engineers.

5—First swivel with two tapered roller bearings—one for the load and one for the upward thrusts.

6—6 inch swivel is 5 feet, 9½ inches long overall, weighs 1150 pounds, capacity of 120,000 pounds.

4 inch swivel is 5 feet, 5 inches long overall, weighs 750 pounds, capacity 70,000 pounds.

Every comparison in length, weight and simplicity with other swivels of equal capacity add to its prestige.

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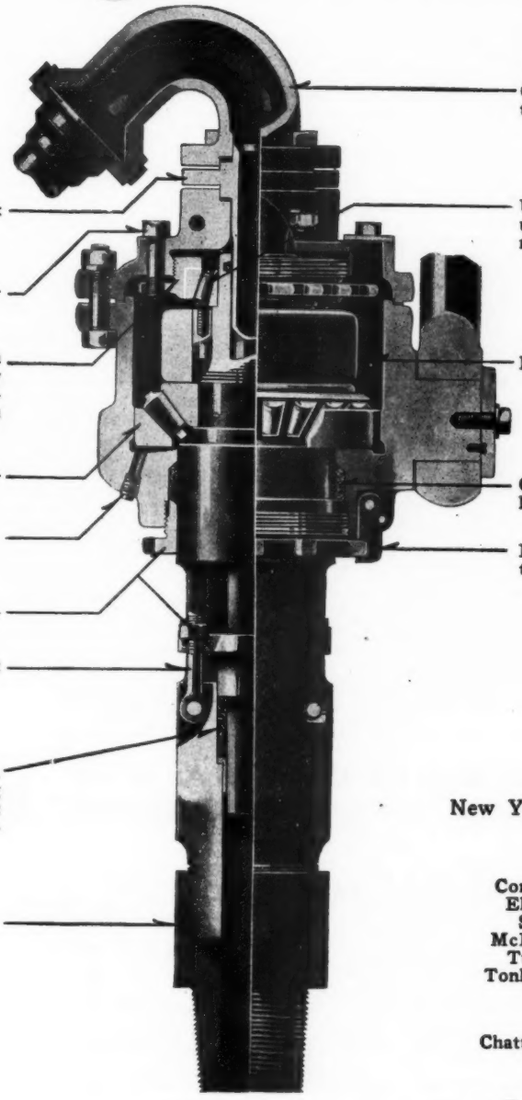
Rotary Swivels



Gooseneck bolted solid to swivel body through flange of wash down pipe.

Flanged end of wash down pipe, no leak here could enter bearing chamber.

Upper TIMKEN roller bearing to absorb upward thrusts and hold stem in alignment.

Three cap screws for holding roller bearing adjusting plate.

Roller bearing adjusting plate screwed in cover can be adjusted from outside. By adjustment of this plate all loose or excess motion of the roller bearings which are the only bearings, can be taken up.

Roller bearing chamber.

Lower TIMKEN roller bearing for carrying the load.

Compressed felt washers prevent escape of lubricant.

Drain plug for bearing chamber.

Lock for packing gland simple but effective.

Bronze packing gland adjustable from outside.

Two gland adjusting bolts set inside slot in stems but easy to adjust.

Packing at lower end of wash down pipe. This joint disconnected from bearing chamber by slot thru stem where the first signs of leaks will appear and quick adjustment can be made.

Tool joint connection.

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THE NAME IS A LUCEY GUARANTEE

NG CORPORATION.

Condition of Russian Oil Industry

President of Soviet Oil Trust Tells International Petroleum Congress of Situation Since War and at Present

By A. Serebrowsky
President of the Russian Oil Trust
Address before the International Petroleum Congress, Tulsa, October 7, 1924

I am pleased to extend greetings to this Congress from the Russian oil industry as president of the Aznefť Government Corp. I think that this is the first time in the life of the oil industry that Russia has taken part in the International Congress. The causes of this appearance are the following:

The Russian oil industry had taken first place in the world before 1901. After that it stood second, because of the increase of oil production in America, where it had reached 88,000,000 bbls. per year. Before the war the Russian production was about 80,000,000 bbls. per year. Then it decreased to 45,000,000 bbls. per year, giving up second place to Mexico, which had 60,000,000 bbls. per year. During the last operating year, or from October 1, 1923, until October 1, 1924, the Russian oil industry produced more than 72,000,000 bbls., and thereby Soviet Russia again took second place in the world's oil production.

Peculiarity of Russian Trade

The peculiarity of the Russian oil industry is that it works principally for the interior market. Almost all the production goes from Baku to Astrackan, Volga and above. All the Russian production of Grosny goes to Ukrania and north of the Caukasus. Out of 65,000,000 to 70,000,000 bbls. of production only 8,000,000 bbls. of refined products were sold to foreign countries. About the same quantity was sold last year to foreign countries.

The main object of the Czar's government was to receive the most money possible from the operators for the lots which belonged to the Government and were rented. The operators were only interested in how much it was possible to get out of the lots. They did not take care of the regular oil field exploration and the equipment of the property.

In 1920 the oil fields were reduced to their worst condition, but the Soviet Government was not disturbed by this, being sure that the point of view contrary to that of the Czar's regime could save the oil fields from this failure. The Czar's Government had only predatory purposes, while the Government of Lenin willingly invested much money in order to restore the oil fields. Lenin, himself, was very much interested in Baku and Grosny and watched personally the reports from these places. Such measures in the maintenance of the oil fields proved perspicacious and correct. In 1924 the production increased three times compared with 1920, and in the 1923-1924 operating year the oil industry made the Government the income of 47,000,000 golden rubles, about $24,000,000. The Soviet Government, through Rekof and Kamenev, is continuing the pre-arranged policies of Lenin and is permitted by the State Bank to spend more and more money for the improvement of equipment in the oil fields and refineries.

Historical Review 1914-1920

As I have stated, former oil field owners made a business of overworking the oil fields. The Czar's Government was not discreet and compelled the owners to such methods with its predatory financial policies. For example, in consequence of the great royalty on the fields, especially in new districts, owners did not develop new districts, but over worked the old lots, which rented at a lower rate. They tried to take the most oil as soon as possible from the lot and did not care if the water was shut off. Therefore, even in 1907, many lots were watered, drilling decreased and production began to reduce. At the same time the high excise and freight delayed the desire to spend money for investigation and trial drilling.

In 1915 began the Great War and the old Government did not have any measures against recruiting the workmen without distinction. Therefore, many machinists and experienced oil workers went to war and most of them could not return until the Soviet regime gave them the possibility and the money for returning, but it was after nationalization. At the end of 1918 began the Civil War and the Baku district from November 1918 to May 1920 was divided separate from Russia and lost Russia and the foreign market. The owners began to reduce production and at last left off almost entirely until the beginning of 1920. The Soviet Government reunited former Czarist Russia as a voluntary independent union of republics, and opened an interior market for Baku and Grosny.

From this time began the increasing development of the oil industry. In the summer of 1920 oil fields were watered and abandoned, derricks partly destroyed and partly burned during the war, old fashioned equipment was worn or plundered. The population of the oil fields was dispersed after the Civil and National wars; homes were burned or destroyed. The Zabrat district, where were placed all the drilling contractor shops and stock, was burned by the Turks after gun fire. It is said from a population of 5,000, only several hundred escaped from Zabrat. The rest were massacred. Even now we find in the abandoned cellars and holes, dead bodies of Armenians where the oil saved them from decomposition. The owners did not believe in the durability of the new regime and were not disposed to sell the oil to Russia on credit, and besides they had no money after five years of industrial depression and had no authority among the workers. Meanwhile the State needed oil and there was only one way to get it—to nationalize the oil industry. May 28, 1920, all large oil fields were nationalized except small enterprises. We had no other way and time has proved that the Soviet Government did not make a mistake by nationalizing, as there was a necessity in taking strict measures for saving the oil industry.

Task of Reconstruction

The work which made this new organized Government industry may be called enormous. Azneft and Grosneft, the district operating corporations, raised up oil fields and refineries from nothing. All oil wells were investigated and examined. In Baku in 1920 there were in operation only 800 wells with a production of 800,000 bbls. monthly. In 1924, 2,650 wells were producing (Baku only) 4,500,000 bbls. monthly and 6,000,000 bbls. together with Grosny. From the watered lots the water was pumped up and several other districts were saved. New districts were investigated and developed by drilling. In 1920 there were in operation only 48 rigs, and in 1924, 284, among that 85 rotary. In the operating year of 1923-1924 we have already drilled 495,500 feet or 35,000 feet per month (Baku only).

To improve the drilling exploitation there were built and equipped new machine shops, steel foundry, rolling mills, several garages, with a total of 650 cars and trucks and 2,150 horse drawn.

At last there was built a railroad over all the oil fields and plants with a length of 120 miles. This railroad was furnished with 875 cars and 40 locomotives; besides, this road joins the oil fields and plants with the north coast of the Apsheron Peninsula, where you will find a nice beach and pleasant climate, not as hot as in Baku. We are now building workmen's dwellings and camps. In 1920 was the big dwelling crisis. The houses were burned and destroyed. During the period of nationalization we built several workmen's camps, about 2,700 apartments, and repaired suitable old houses. We also joined the oil fields and refinery with the town of Baku by electrical railways and this measure helped meet the crisis. At last we were obliged to organize our own supply; for it we expended a large amount of money, building large stores in Baku with piers and railroads. In some large towns of Russia we organized offices for purchase of equipment and raw materials. Around our supply we united all auxiliary enterprises; machine shop, foundry, wire rope plant, brick plant, saw mill, all these measures for helping to improve equipment and the raising of the production until 72,000,000 bbls. per year had been reached, for Baku and Grosny together.

Trade of Oil Products

Before the war the oil trade belonged to two companies, Noble and Marnont, and was organized well enough for the interior market, but very weak for the exterior; this may explain the connection of these two companies with the Standard and Shell.

After the nationalization when all the stock and all transports were in the hands of the State, Baku and Grosny united their separate trading and established "The Russian Oil Syndicate" the administration of which consists of three directors from Baku and two from Grosny.

This syndicate united all the trade, all the stock and transportation facilities and was able to restore the interior market and besides to penetrate into foreign countries, attaining export trade almost to the prewar quantity.

From Baku we export to foreign countries. Kerosene goes to England and her colonies, gasoline to France and North Africa, lubricating oil all over Europe, and fuel oil to the railroads of Italy.

The trade of oil products in Russia and foreign countries now makes a good income for the Russian Government. In other words, from October 1, 1923 to October 1, 1924, the State received 47,000,000 rubles, or about $24,000,000. This sum is not so big, but for a beginning it is not so bad. The income of the State could be more if the Government were related to the oil industry only as to the profits, but the Soviet Government has taken a broad point of view on various things and has given the oil trust permission to spend the dividends for the renewal of the equipment.

The Government very strictly sets the prices for the product and more than once made reductions on the raw product of 32 copper Russian pud (one-half cent) f. o. b. Baku. The prices of kerosene have also been reduced in such manner.

(Continued on Page 253)

OIL INDUSTRY'S PROSPECTS AS SEEN IN NEW YORK FINANCIAL CIRCLES

By N. O. Fanning

NEW YORK, Oct. 6.—There is a rather general feeling in oil and financial circles that domestic oil production is about to start definitely on the down grade. This feeling is inspiring considerable hope and confidence as to the immediate future of the oil business. A concrete result of this feeling is the fact that the price of sound oil securities have been firm despite the current drastic reductions in crude oil and gasoline prices.

Apparently the chief foundation of this optimism lies in the belief that the flush pools of Oklahoma have reached their peak and that there is not sufficient flush production outside the State that can be obtained in time to stem a rather precipitate decline in the aggregate domestic oil production figures.

At this distance it is impossible to check the reliability of this impression, but it is believed it comes from sources originating in the big Mid-Continent production centers.

If accurate, a decline in production would mean a restoration of crude oil prices, followed by a rise in gasoline. Doubtless the oil industry feels a general advance in prices before the end of the year is absolutely essential if the business is going to show a balance on the credit side at the close of the year.

Relegating consideration of the future and getting down to conditions as they are at present, there seems to be more ground for pessimism than for optimism. Production of crude oil in the country has not shown any tendency to fall below 2,000,000 bbls. daily, a level which means adding to stocks except for the peak months of the year. This year, so far, stocks of crude oil have increased each month, even in August, the peak month of consumption. Several months ago it was stated in official quarters that this country could stand a drain on stocks of several hundred thousand barrels daily for months. If this was true then, it is still more so now.

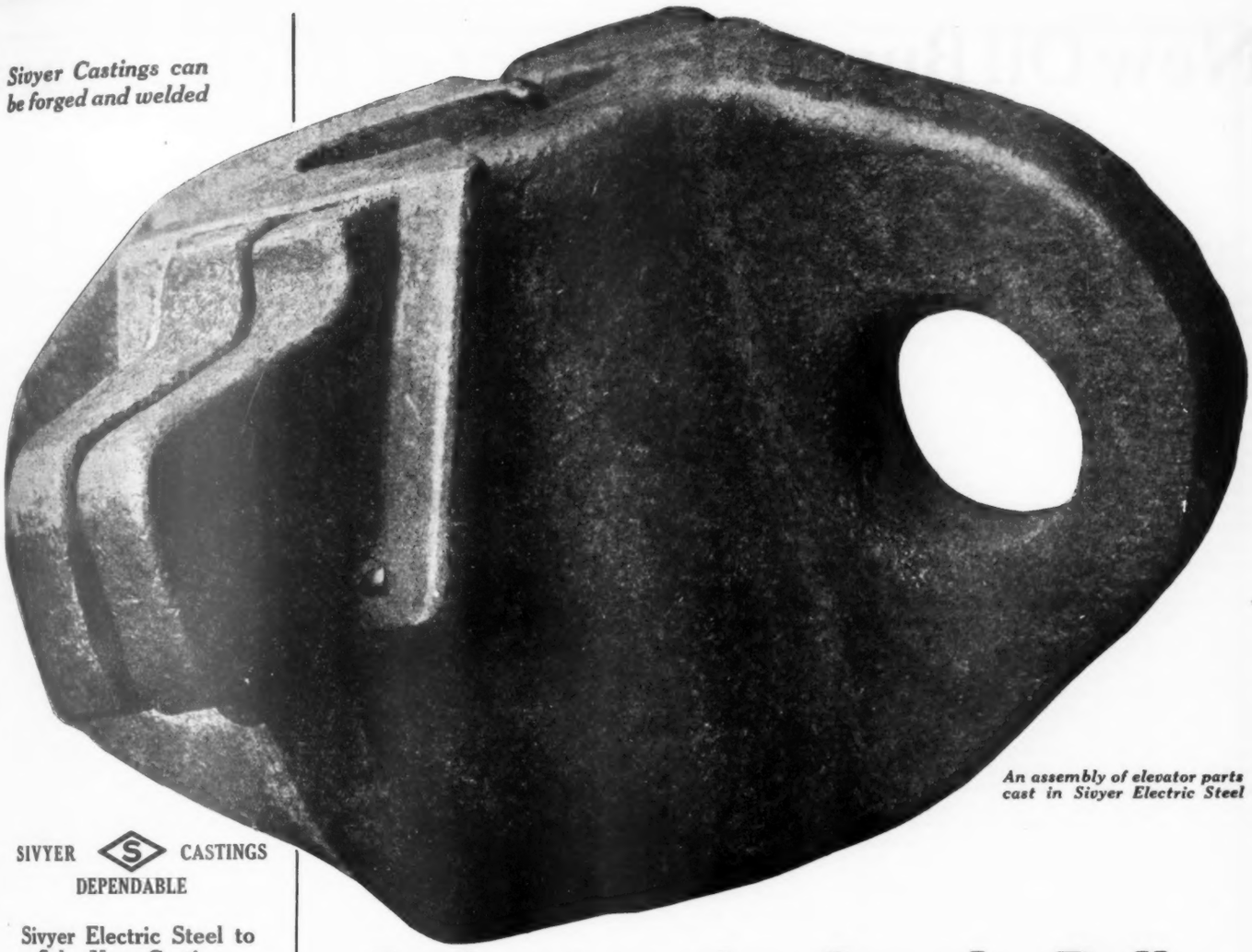
Immediate Outlook

With the next few months bringing a seasonal decline in consumption it is plain that two developments must take place to bring substantial relief: (1) A decline in daily average crude oil production of the United States extending to several hundred thousand barrels daily, and (2) an unexpected increase in domestic and export consumption at a time when a seasonal decrease would be the more natural development.

The oil business has experienced an unprecedented increase in consumption from year to year since the war, so that present consumption is far above the peak war level. But it has not enjoyed this increase, because production of crude oil has increased at a still faster pace. There is no parallel to this situation in the history of the oil business. Can a still further gain in consumption be expected during the next few years? Doubtless the use of motor vehicle and other oil consuming engines will increase, unless the buying power of the public is curtailed temporarily. This latter is a factor which is scarcely ever taken into consideration in making estimates of future consumption. Although the reparations settlement will ultimately effect oil consumption abroad, it is doubtful whether this alone will stimulate consumption for many months to a degree

(Continued on Page 252)

Sivyer Castings can be forged and welded



An assembly of elevator parts cast in Sivyer Electric Steel

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Sivyer Electric Steel to Solve Your Castings Problems

Perhaps, you are having trouble with forged parts—parts that do not give the service that you think they should—or, perhaps, your costs on forgings are running rather high. Parts of intricate or thin section design can be readily and economically cast in steel. Sivyer Electric Steel Castings are exceptionally durable and show great resistance to wear and strains. The high temperature electric furnaces, plus the excellent Sivyer annealing practice—where the castings are grouped for annealing according to the heat treatment that they require—provide a tough close-grained metal that furnishes exceptional strength and resistance to wear even under the most exacting conditions.

Visit the Sivyer Exhibit Booth #31 New York Building during the Tulsa Show

Defeating the Steady Pull of 60,000 Pounds

THE elevator assembly, pictured above, is called upon to support a dead weight of about 60,000 pounds. When the drill pipe, supported between the elevators, becomes jammed this strain is often doubled and even trebled. It is evident that the elevator must be exceptionally strong. To forge the parts would be expensive and in some cases impractical, because of their design. In addition, the use of Sivyer Electric Steel Castings enables the manufacturer to produce this assembly with a minimum of machine work.

SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE

New Oil Burner Product of Eight Years

Socony Burner Corporation, Standard of New York Subsidiary, Now Manufacturing and Distributing Them in Limited Territory

By L. M. Fanning

Advances in Oil Burner Industry

The manufacture and sale of oil burners for household heating will show another important advance this year. Opening up a large market for fuel oil and furnace oil of a kerosene fraction, the petroleum industry is alive to the possibilities of the new field, while at the same time disposed to be cautious because of the uncertainties that have accompanied the development of household burners. One authority states that there are now some 5,000 patents for oil burners, and that probably three or four hundred different kind of burners have been placed on the market throughout the country. The industry has had a mushroom growth and in many cases has had claims made for its appliances that have not been borne out by actual test and operation. This has made it increasingly difficult for the well organized and legitimate elements in the business, whose appliances have passed necessary safety inspection and are being successfully operated, to satisfy the public that the oil burner has come to stay. However, in the last two years there has been a decided effort to stabilize the industry which is bearing fruit and which, if persisted in, will doubtless mark the passing of the first or "mushroom" phase of the business. Up to the present time the oil burner manufacturing industry's development is comparable with the first 10 years' development of the automobile business. The automobile struggled out of the infant stage when it was regarded as a somewhat dangerous toy, into the early boom years when lack of standardization threatened to permanently retard its development. Then came a period of concentrated engineering application and standardization, out of which came the present motor car. In the same way, burners of various make are now being improved and certain features standardized, so that there is every reason to believe the industry will make advances as large and significant as those made by the automobile industry.

* * * * *

Potential Market for Oil Burners

According to oil burner manufacturers there is now no question as to the market for satisfactory burners. They do not claim the time has yet come when every householder is ready to consider an oil burning installation. One reason for this is due to the cost of the installation, which, however, is being gradually reduced. Another is that in some sections no money saving is represented in oil as against coal for fuel. With coal at from $14.50 to $16.50 a ton, furnace oil can be supplied on a parity or lower. But it is pointed out that the demand for oil burners is coming predominantly from house owners whose chief consideration is the superior comfort afforded by heating with oil. In this particular, the oil burner again furnishes a parallel with the automobile. In the early days of the automobile it was largely used by the wealthy or by persons in comfortable circumstances. Some oil burner manufacturers are frank to admit the day has come when the man of modest means owning his own house can in large numbers equip his house for heating with oil fuel. The logical development of the industry, however, which points to a constantly cheaper burner and possibly a burner using a heavier and cheaper oil, indicates the day will come when oil burners are in universal use, just as has happened in the case of automobiles. It is no longer doubted there is a revolution under way in house heating methods and that oil fuel has made it possible.

* * * * *

Standard Oil Co. of N. Y. in Field

Probably one of the most important developments in connection with the development of the use of oil heating is the recent entrance of the Standard Oil Company of New York into the field. Through a subsidiary, the Socony Burner Corporation, it is now manufacturing and marketing a burner in a limited territory. The parent company is known as a pioneer in spreading the use of the kerosene lamp, stove and heater. It is still one of the largest marketers of these devices which until the growth of the automobile furnished the petroleum industry with the principal outlet for its products. The fact that the company has gone into the oil burner business is sufficient evidence of how it regards the future of this market, and at the same time entrance of such companies with large financial resources, willing to stake their reputation on their devices, is regarded by many in the oil burner manufacturing field as a promising sign of the stability of the industry. Officials of the Socony Burner Corporation state that oil heating is introducing one of the most important advances in the history of homemaking.

* * * * *

Factors in Favor of Oil Burning

The chief superiority of oil heating for the home, it is pointed out, is that it can be automatically controlled, thus placing uniform heat on a basis of mechanical reliability and at the same time eliminating all furnace worry. A small thermostat or regulator is set for the desired temperature and the oil burner is automatically operated to maintain that temperature without any underheating or overheating. Furnace labor such as stoking, carrying out ashes, tinkering with grates, digging for clinkers, building new fires, banking for the night and opening up in the morning, are eliminated. Next to uniform comfort and freedom from furnace work the most valuable advantage of oil heating is cleanliness. The oil heater is installed in existing furnaces and is equally adaptable to steam, hot water, vapor or hot air systems. Due to the fact that every particle of oil is burned, its heat-producing efficiency is from 85 per cent upward, while coal has only about 35 per cent heat value.

* * * * *

Scope of Operation of Socony Corporation

The Socony Burner Corporation is manufacturing its burner at a plant in Brooklyn, N. Y. Its present plans are to market the burner only in prescribed territories which will make it possible for the company to give complete service with installation and repair crews in call throughout each district. It has established sales, installation and service offices in Long Island and Westchester County, New York; Syracuse, N. Y., New Haven, Conn., and Boston and Springfield, Mass., and covers a radius of 15 miles around each office. All connected with the sale, installation and service of the burner are direct employes of the company, which operates entirely separately from the Standard Oil Company of New York. In the districts mentioned, however, the parent company is equipped with tankage and tank trucks to furnish furnace oil; so that house owners who put in the burner have an assured source for the oil supply although they may contract for oil from other companies marketing in the district if they so desire. The Socony Burner Corporation is selling its burner for $900 with a 1,000-gallon tank equipment, and for $600 with inside storage.

* * * * *

Studying Burner for Number of Years

The new burner, which is being marketed under the trade name of Socony Arrow Oil Burner, was developed by the company from patents developed by the Skinner Engine Co. This series of patents was acquired last year by the Standard interests which had been studying various patents and watching the progress of oil burners generally for about five years. After acquisition of the patents further development work was carried on until this year the company decided its burner was ready for marketing. In all, the company states its burner is the perfected

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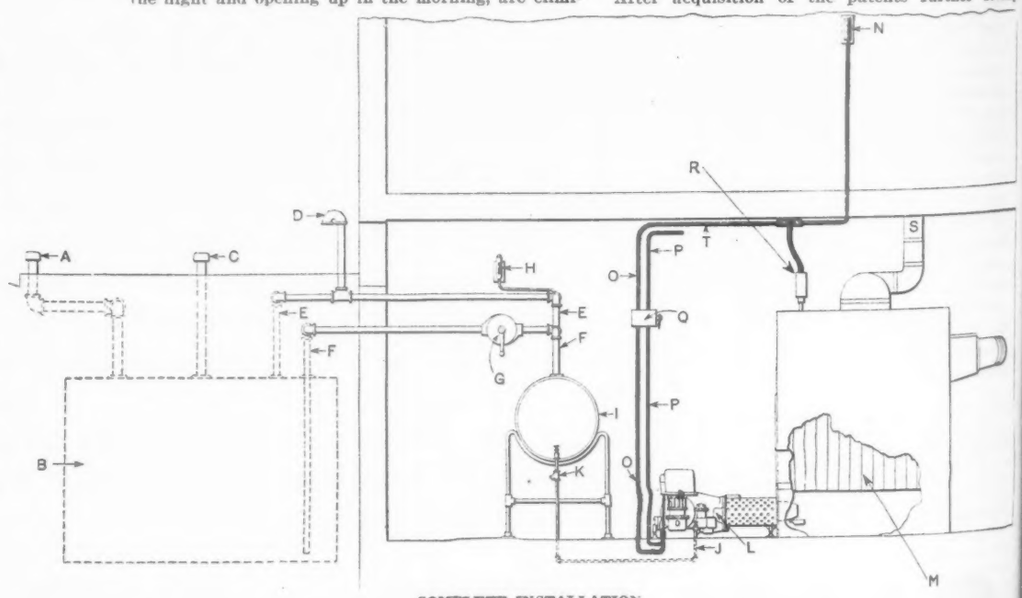

COMPLETE INSTALLATION

A Oil filling cap.
B 1,000-gallon storage tank.
C Tank cleaner pipe.
D Air vent.
E Air pipe to inside tank.
F Oil pipe to inside tank.
G Oil service pump.
H Petrometer (to measure inside tank oil.
I Inside 55-gallon oil tank.
J Oil feed pipe to burner.
K Oil feed pipe strainer.
L Socony Arrow oil burner.
M Boiler.
N Thermostat.
O Thermostat wire to burner.
P 100-volt service wire to burner.
Q Cut-out switch.
R Thermostatic safety switch.
S Steam or hot water pipes to radiators.

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TULSA, OKLA. U. S. A.

What American Oil Men Face in Persia

Twenty Years German Resident Relates Story of Petroleum in the Land of the Shahs. International Rivalries Dominant

By Alfred Heinicke

Persia, although apparently poor, is in reality one of the richest countries in the world in natural resources. Years ago Russia and Great Britain recognized Persia's economic possibilities, and it became soon a germ of latent hostility between the two nations, but later evolved into three comparatively harmless zones. One was a Russian sphere of influence, a second British and a third a neutral zone. The war has altered affairs in this part of the world so entirely, that American interests are about to enter the country to engage in oil well exploitation. Russia is out of the game and American dollars are welcome in the land of the Shah.

Many a globe-trotter who has crossed Persia from the Persian Gulf to the shores of the Caspian Sea has left the land with the impression that he has traversed a huge territory and is glad that his tiresome caravan journey is concluded. His experience is usually limited to the boast that he has seen an expansive country. He brings away a recollection of long, barren mountains, miles of sun-baked, uncultivated and often sterile plains, dotted here and there with tiny villages, and dirty, tumbled-down caravansaries. Perhaps in the large towns through which he was passed, such as Shiraz, Ispahan and Teheran, he has strolled through some of the interesting and semi-dark bazars where European goods are sold as well as beautiful Persian rugs. Maybe he was fortunate to visit some fine, old palaces entirely surrounded with welcome cypress groves. Or he may have been entertained by a local prince-governor; or he may even have come in contact with robbers who relieved him of some of his personal property. For him the country represents Oriental poverty. But, in reality, the country is wealthy, as those, who have lived for many years in the Shah's dominions and observed their development, realize.

Persia's Mineral Wealth

Persia's riches lie beneath her barren mountain ranges and extensive plains, and underneath the unpromising soil, where, in springtime, the nomads pasture their flocks amid the millions of flowers that cover its bosom. Persia is rich in minerals. There are rich deposits of coal, sulphur, borax, salt, lead, copper, manganese, asbestos and oil. There are iron mines with ores which range as high as 70 per cent in grade. Little is done to obtain these minerals, of which the petroleum oil deposits are by far the most imoprtant. The abundance of oil in Persia can only be guessed at today in a region that is actually many thousand square miles in area.

In quality the Persian petroleum is considered superior to that found in the neighboring Baku district. The northern extremity of the oil area is in the Province of Kermanshah. It extends east close to Ispahan, the former, anicient capital of Persia. Besides, oil has been found in the south of the Dashti and Dashtistan Mountains which form the hinterland near Bushire, the most important seaport on the Persian Gulf. Farther down the gulf coast, oil has been discovered near Bender-Abbas, the gulf terminus of the great caravan route from Meshed to Kirman. Even on the larger islands in the gulf such as Kishem, near Bender-Abbas, oil was extracted in 1891. In the northern provinces along the Caspian Sea and around Urmia Lake, in Tabriz, oil is plentiful; and, it is here that the American concession holders will probably do their exploiting.

LONG IN SERVICE OF SHAH

Colonel Alfred Heinicke is a resident of Saxony, and was for several years in the German Merchant Marine. Finally he entered the service of the Shah of Persia and was put in command of the Persepolis, the first gunboat possessed by the Persian Government, upon its arrival from Germany, where it was constructed.

He was decorated and was given the title of colonel by the Shah for heroic conduct during a hurricane when he was instrumental in saving the lives of Persian sailors in the Persian Gulf. After 16 years as commanding officer of the gunboat, Colonel Heinicke established himself in business in Shiraz, where his affairs were terminated by the British Expeditionary Force in Mesopotamia. In all he lived about 20 years in Persia, having gone there before 1900.

The photographs which accompany this article were taken by the author.

In 1888, the Imperial Bank of Persia was founded by a group of Englishmen at Teheran. It soon entered upon a sideline of exploiting the mineral resources of the country. Through the Mining Rights Corporation which it organized, it began with petroleum. The first oil prospecting by this company was done at Daliki, on the caravan route between Bushire and Shiraz, about 20 miles east of Bushire at the foot of the Dashti range through which the caravan route runs over four barren and rugged, lonely ranges to Shiraz.

Close to Daliki oil oozes out of the mountains, where one sees ditches filled with the black liquid. Besides there are hot springs in this region which can be smelled miles away on account of the hydrogen sulphide they give off. In the brooks which carry off the water from the springs, one sees in either the green or milky white waters globules of shining crude oil. These ditches and brooks were known for centuries to the natives who used the oil found in them for medical and fuel purposes and for making their boats watertight. In this locality the first oil derrick was erected and the first well hole drilled.

I was present at the first drilling, being at that time in the Persian service as commander of the first gunboat Persia owned, built for Shah Nasreddin in Germany. Captain Kement, the manager of the operation, was a personal acquaintance. Although Captain Kement's men drilled several holes, they did not reach any of the subterranean reservoirs.

First Persian Drilling

For two seasons the little expedition worked under trying climatic conditions at Daliki but only during the cooler rainy season, November to March. During the hot months the party, not being able to withstand the excessive heat, camped at Shiraz. The men persisted in their work despite the fever from which some of the engineers suffered, and heedless of death by typhoid of one of the corps, and the discomfort of the crude huts which housed the expedition. To be successful, prospecting has to be organized by persons who know the country and its people and who understand how to cope with the rigors of the climate.

The transporting of materials from Bushire to the foothills of the Dashti range was extremely arduous. Every ton of coal, every plank, beam, in fact, every small article needed for the exploitation of hidden oil, had to be carried on the backs of mules. To bring a steam boiler to the seat of operations required 20 days. The distance was only 20 miles, but the boiler had to be rolled along on planks by natives every inch of the distance to prevent its sinking into the mud and sand.

Equipment Sold

After about two years of this kind of effort, the results were so disheartening that the work was abandoned. A large sum was expended in the unproductive attempt, and the Mining Rights Corp. transferred its engineering corps to the island of Kishem near Bender-Abbas. But no success came from the new undertaking, and the company thereupon sold its equipment to the Birma Oil Co.

Over this terrain all goods between Bushire and Shiraz must be transported.

This company has been investigating in 1901 near the towns of Ahwas and Shustar in the province of Arbitration. Soon after beginning operations the Birma Co. struck oil at the village of Ramharmuz. The company flourished

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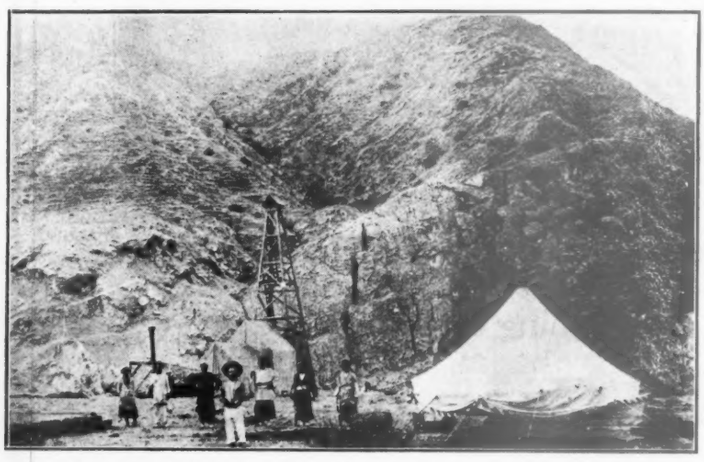

The oil camp at Daliki. One of the engineers and a few workmen. Tents and mat huts are their homes.

The first well, the camp, and a view of the barren and desolate region near Daliki.

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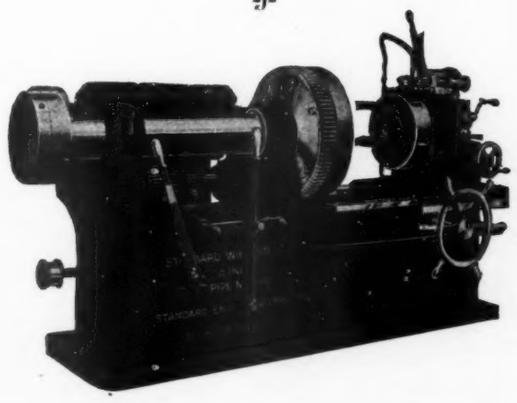
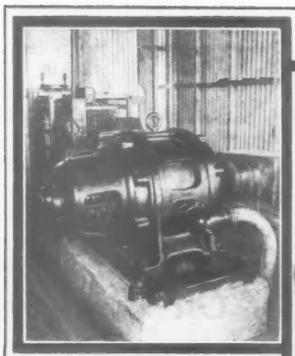
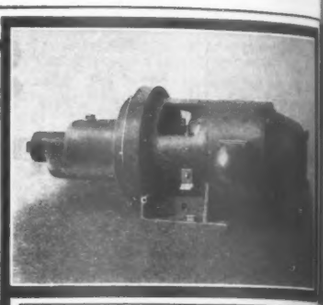


In the Oil



15-35 Hp. Oil Well Motor driving pump

Portable Motor D[illegible] Arc Welding Outfit—175 Amperes



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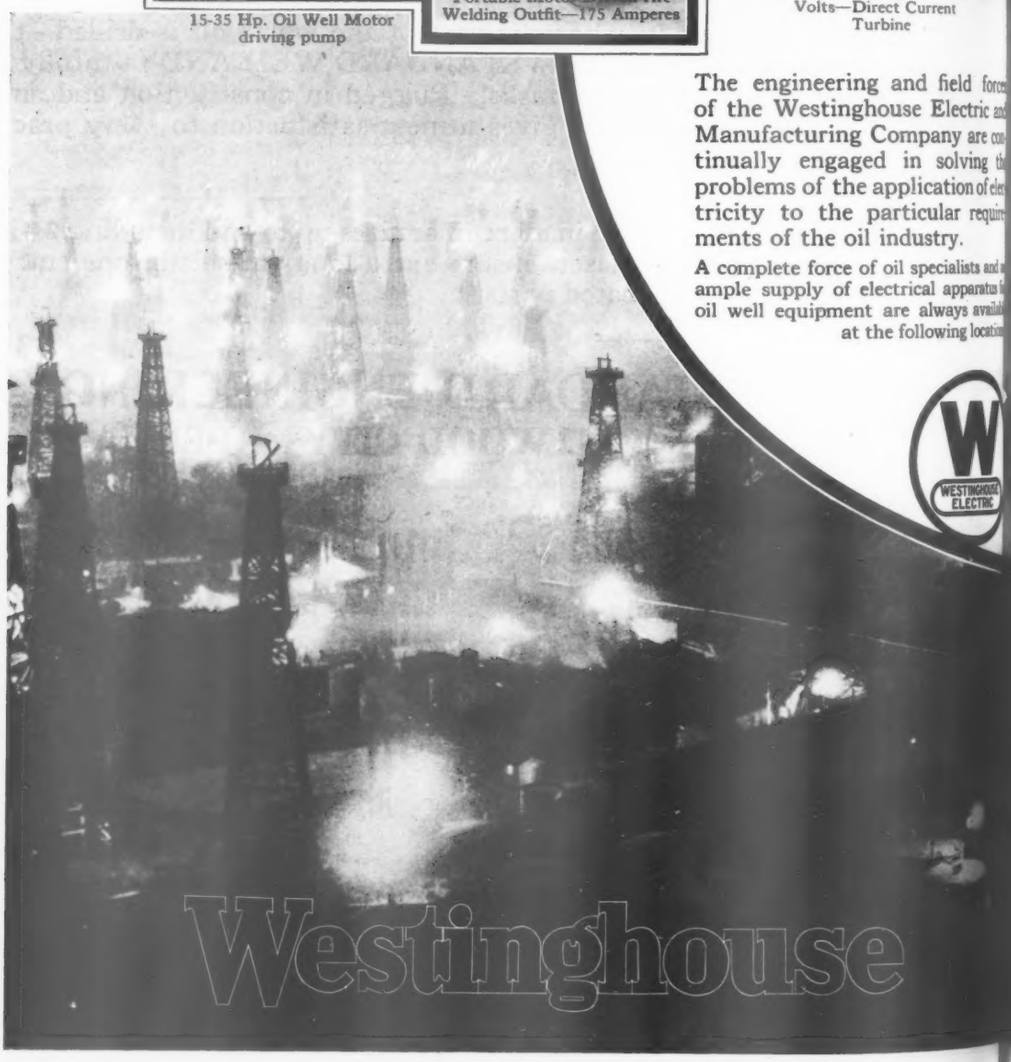
The engineering and field force[illegible] of the Westinghouse Electric and Manufacturing Company are continually engaged in solving the problems of the application of electricity to the particular requirements of the oil industry.

A complete force of oil specialists and ample supply of electrical apparatus for oil well equipment are always available at the following locations



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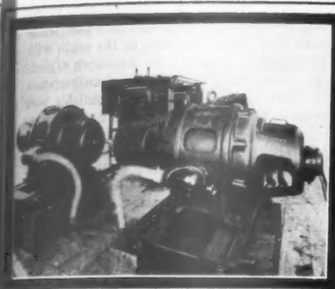
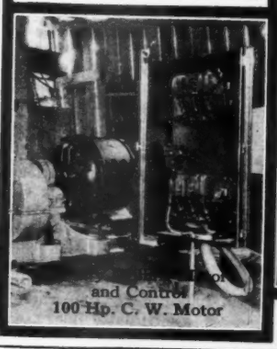


Twin Motor Drilling Equipment using 15-35 Hp. Oil Well Motors



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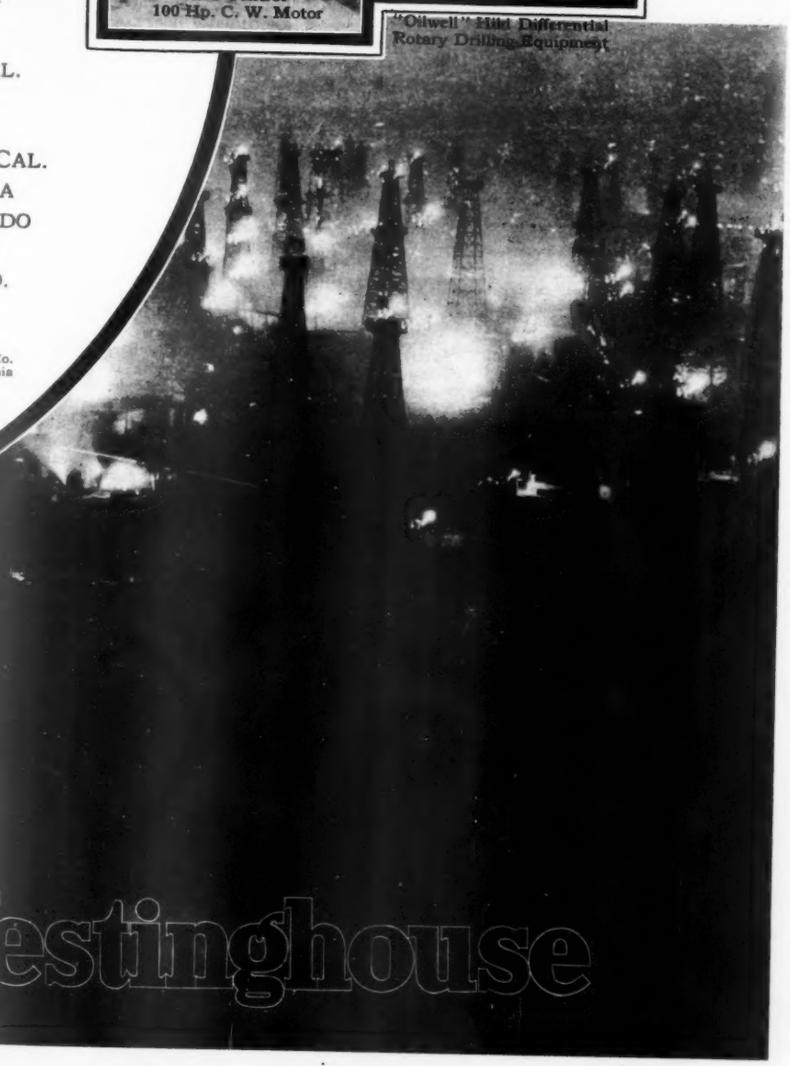


Westinghouse

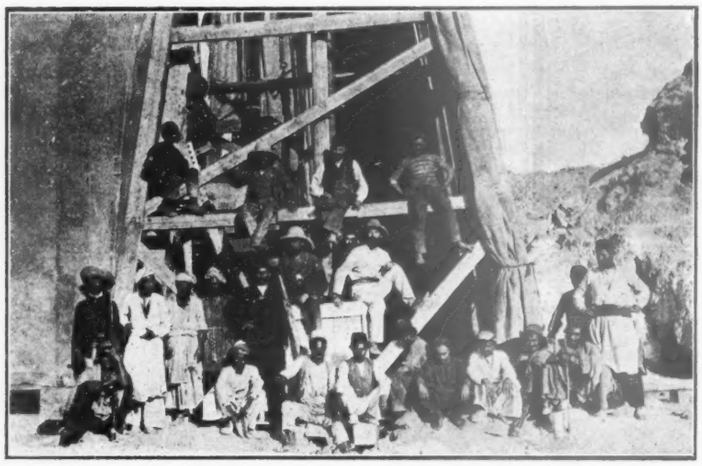
WHAT AMERICAN OIL MEN FACE IN PERSIA

(Continued from Page 182)

and gained the attention of the British Government, which offered to purchase an interest in it. Being confronted with political as well as commercial problems, the company is reported to have accepted 2,000,000 pounds sterling from the British Government to receive it as a partner. The concern then became associated with the Anglo-Persian Oil Co. Extended negotiations with the Persian Government produced a long-term concession which has been rumored to be 99 years.

Concessions Scattered

It was possible for the British to obtain the concession on account of the serious diplomatic blow to Russia, and in a way was a violation of the treaty of 1907 which established the three spheres in Persia. The most northern part of the concession was near Kermanshah in the Russian sphere of influence, the other important district was in the neutral zone, and the smallest part of the oil district just bordered on the British sphere in the southeastern corner of Persia near Bunder-Abbas.



Captain Kement, his engineers and workmen, assembled around the base of the derrick. Most of these men came from Bushire.

Notwithstanding the restrictions of the treaty, the British obtained their hold on Persian oil for a sum that has been reported unofficially to be 45,000,000 pounds sterling. A Persian nobleman once remarked in the course of our conversation concerning the new oil project:

"The amount of English money we got out of this concession reminds one of the Persian proverb which says 'It is like giving water to a camel with a teaspoon.'"

Center of Oil District

The most important existing center of the oil district is Mohamerah, a small town on the Karun River, which enters the Shat el Arab a mile below the town. Opposite Mohamerah the British founded the town of Abadan which is the pipe line terminus of the wells in Tembi. The refining is done here and ocean-going tankers are loaded alongside the refinery docks, with a fuel cargo for the British merchantman and the man-o-war. The development of this refining port is comparatively recent, and its greatest strides were made during the war. Abadan is the pride of the British. It is a great factor in British naval and shipping supremacy.

The Anglo-Persian Oil Co. began with a fleet of two tankers in 1902 and during the war 31 steamers were required to ship oil from Abadan. Even in 1907, 150,000 tons were shipped from this British port, and a year later it rose to 800,000. It is all needed, for the entire Indian merchant fleet and the Indian railways are supplied from the Persian wells.

The Karun oil fields lie on both sides of the Karun River. Part of this territory is the winter quarters and pasturage of numerous and warlike tribles, the Baktiari. Great Britain has worked for many years to maintain the friendship of these tribes of Arabistan. Sometimes it is a simple matter.

Oil Politics in Persia

When the English firm, Lynch Brothers, opened up the steamboat line running from Shustar to Basrah, the important river port of Mesopotamia, the British Government demonstrated a great interest in this project; and to gain added support for the British operators, the British Government knighted the already friendly Sheik of Mahamerah, Asal Shan. The Persian Government was too anaemic to intervene and was obliged to allow affairs to take a British course.

The "Oilpolitik" in this region greatly diminished the control of the Persian central Government and a continuance of it may in time mean the elimination of Persian sovereignty wherever there is oil in the land, or it may breed a war between the two powers who compete for political oil supremacy in Persia.

Petroleum with all its by-products could have been the salvation of the Persian Empire if selfish and greedy native politicians had not sold the heritage of their land for pounds sterling. But it must be remembered that the Persian has no consciousness of national patriotism. He does, however, love intensely his own city, and finds it severe punishment to be exiled from it. Every Persian is devoted to his family and his home, but he cherishes no fondness for his fellow-countrymen at the other end of the empire, even though they be suffering from the famine or plague.

This state of affairs is a creation of the circumstances of life in Persia which cuts off cities and provinces from one another by journeys of many days. Thus Persia has grown to be a land where the local political organizations are the most virile, and about which the Persian is most concerned. The empire at large is looked upon as a treasure hoard which anyone in power exploits to his own advantage through the desires of other nations. This isolation makes the province supreme.

Some time ago a British admiral, Lord Fisher, said in an article that "the power in our future policy depends on the possession of the most productive oil wells—oil will mean world power." Any Great Britain has made this her aim. The British Government renewed the arrangement in Persia in 1918 for the Anglo-Persian Oil Co., of which the British Government is an interested stockholder to the extent of 50 per cent. Of course, she had her supplies in Borneo, East India and Trinidad and in Mesopotamia through the peace treaty with Turkey, but British statesmen wanted to maintain a hold upon the greatest part of the world's oil sources. The race is between the United States and the British Empire. England has no one else to reckon seriously with. Of course, the nation which can obtain an abundant supply of oil quickly in a fairly concentrated area inhabited by a civilized people is at an advantage compared to the one which has a great supply not easily exploited. In this respect Great Britain is handicapped. The status of civilization where her oil resources are situated plays a surprising role in the drama of oil.

American Concession

Upon learning that an American concern is to be granted a concession in Persia, the person familiar with the politics of Persia may conclude that Persia is in need of money and that England cannot give it; therefore the United States is offered the bait of oil. The loan which Persia is now negotiating appears as the expected proof of this conclusion.

However, concessions in Persia should be viewed with a shrewd eye. The Persian archives are full of them. Prior rights may crop up to complicate the activities of an organization. The Persian diplomat may not be as astute in most respects as the occidental, but he employes methods at times which baffle the Westerner. The American may find that his dollars will come into conflict with British pounds. Who, after all, understands the depths of native Persian policy?

Of course, the northern fields which Sinclair Oil Co. may get have an abundance of oil, but a cheap means of transportation to a shipping point will be the foremost problem. Many prospective concessions have been mulled over at Teheran, but they invariably culminated in the question of being able to transport the oil as cheaply as a successful competitor.

Persia could never boast of many railways; in fact, this is one of her economic shortcomings. Muleback continues to be the principal method of transport throughout the empire as it has been for centuries. Where are the available seaports in the four or five provinces in which the Americans will have a free hand? Many a concession has brought failure because of the prohibitive cost of crude oil by the time it was brought to a shipping center.

Nowadays it is not as easy for a small backward State to obtain money for worthless concessions as it used to be; and one must believe that the Sinclair company has investigated its project with keen scrutiny. But, with Russia to the north in Baku with excellent port facilities and Great Britain to the south with invaluable Abadan, an American exploiter in the middle with poor transportation facilities and no apparent available port would be at a disheartening disadvantage.

Europe, almost needless to say, is watching with expectant interest the commencement of a display of Yankee enterprise.

Kind of people dwelling around Mohamerah and the Karun oil region.

KINGWOOD TAKES OVER EASTERN GAS LINES

OKMULGEE, Okla., Oct. 4.—In order to enable the Kingwood Oil Co. to supply consumers with gas at all times and for all purposes and realizing that the supply available for domestic consumers of Okmulgee and the town of Morris and the industrial users of gas in this locality is limited, the companies have consummated a purchase from the Eastern Gas Co. and S. C. Beers of all of their gas properties, pipe lines and distributing systems and gas well and production.

The Kingwood Oil Co. will take over all of the gas production involved in this purchase and the Kingwood Pipe Line Co. and all of the pipe lines and distributing systems and contracts for the purchase and sale of gas and will carry out all of the contracts. By this absorption, the Kingwood Pipe Line Co. will have an ample supply of gas to meet all requirements.

NEW EUROPEAN FIELDS?

Reports from Paris say that operations conducted under Government direction near Gabian, in the Hernault Department, have resulted in the discovery of petroleum. The output, it is estimated, will be about 25 litres an hour. Samples have been submitted for analysis. The boring was commenced as a result of highly favorable reports by the Petroleum Consulative Committee.

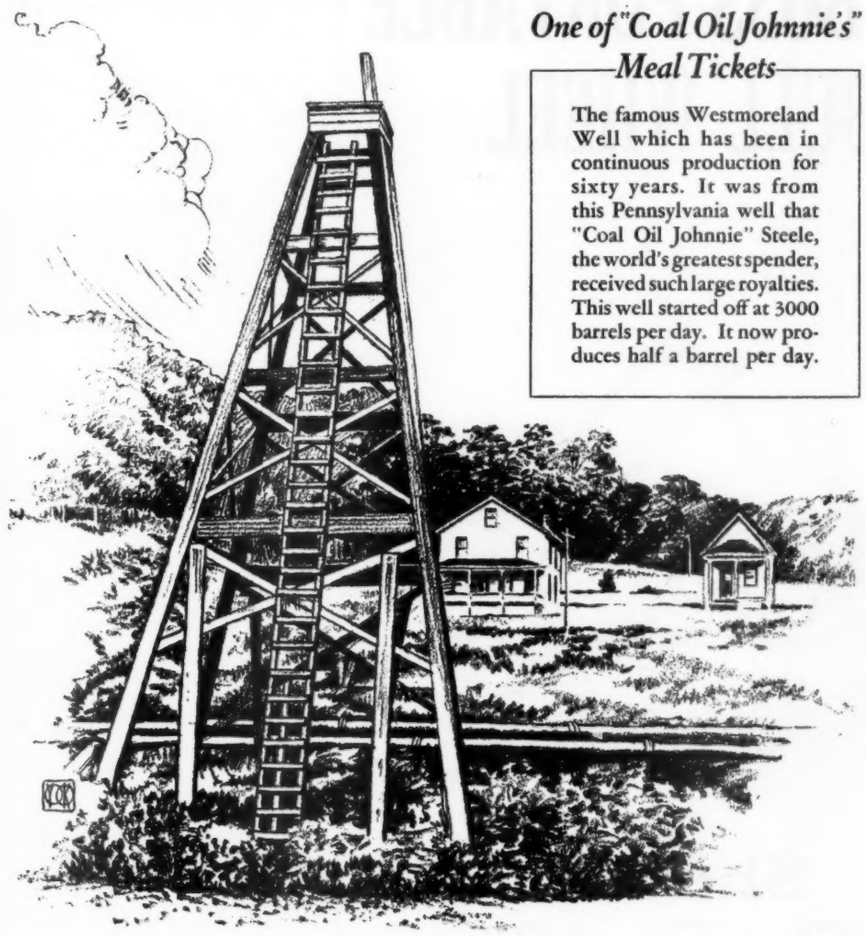
At Boldesti the Romano-Americana Standard Oil interests, drilled an important gas well with traces of petroleum. Dr. E. Sanielevici, geologist, who has reported on the area, is of opinion that it is a continuation of the oilfield of Baicoi-Tintea.

GASOLINE TAX LARGEST

OKLAHOMA CITY, Okla., Oct. 4.—The gasoline tax collected for the month of September exceeded all other combined taxes, records for the month in the office of C. C. Childers, State auditor, show. The gasoline tax totaled $376,811.35 for the month. The gross production tax amounted to $175,181.31, while the inheritance tax total was $8,942.17, income tax $1,370.62, tank car tax $64.41 and the foreign insurance tax $7.78. The total tax collected for the month was $562,486.64.

ROYAL DUTCH IN DJAMBI

M. Kessler, one of the managing directors of the Royal Dutch Co., declared in an interview at Amsterdam, that no extension of oil output in the Dutch East Indies could be expected, owing to present mining legislation. M. Kessler said he was confident as to the results of the drillings at Djambi, though the working was expensive there.



One of "Coal Oil Johnnie's" Meal Tickets

The famous Westmoreland Well which has been in continuous production for sixty years. It was from this Pennsylvania well that "Coal Oil Johnnie" Steele, the world's greatest spender, received such large royalties. This well started off at 3000 barrels per day. It now produces half a barrel per day.

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Sixty years ago, drilling an oil well was a long, tough job—and even today it is no cinch. However, drilling difficulties have been greatly reduced by the advent of honest-to-goodness quality products such as Crescent Wire Rope...The experienced driller knows he can rely on "Crescent" to stand the gaff and reach oil in double-quick time. No matter how rough the going, it stays on the job, resisting abrasion, corrosion and shock. It pays to buy "Crescent"—the utmost in wire rope.

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Mr. T. C. Pike will be in attendance at our Booth, near Peoria St. entrance.

The Boss Mfg. & Supply Co.
Van Buren, Indiana

ROCKY MOUNTAIN AREA

(Continued from Page 60)

The Sunset Oil Co. is preparing to start a well in the Wellington area in the near future and the Wellington Oil Co. is rig building near Loveland on Section 23-6-69 for a wildcat test. The Atlantic Petroleum Co. is to drill a well this fall on the property of the Fort Collins Country Club, on Section 36-8-69 and the Mutual Oil Co. is drilling a wildcat on Section 20-2-43. The Northern Colorado Oil Syndicate has some leases near Berthoud and is preparing to start a well on Section 4-4-68.

Pilot Butte Producer

The Marine Oil Co. brought in a producer good for 90 bbls. in the Pilot Butte Field near Riverton, in Fremont County, Wyoming. The well is on Section 21-3-1 and production was encountered about 1,000 feet in a shale fault productive in that field. This is the second well drilled this summer by the Marine and the third is to be started at once. The first well was a dry hole and was abandoned. The Pilot Butte Field is in the Wind River Valley, probably one of the best located fields in the West in regard to beauty. To the west only a few miles is the great Continental Divide with snow capped peaks the year round and on the east is the Owl Creek and Copper ranges of the Big Horn Mountains. The wells are scattered over a broad flat on both sides of the river which teems with fish and the camp of the Marine is in a grove of trees that extends for miles up and down the river. Big game in abundance can be had with little effort by the oil field men at Pilot Butte.

In the Salt Creek Field, the Marine Oil Co. is drilling four wells and the Mosher No. 4 on Section 16-39-78 should be in the second Wall Creek sand this week; it is at 2,785 feet. The Marine No. 8 on Section 17-39-78 is shut down for a few days and the Taylor No. 8 on Section 29-39-78 is drilling at 2,660 feet but is having some trouble with a crooked hole. The Wyokans No. 5 on Section 18-40-78 is drilling at 1,979 feet and is also having some trouble with some lost 10-inch pipe.

Salt Creek now has close to 1,200 wells producing and except some wells drilled outside the proven area, the field has no dry holes. The Midwest is placing a great electrical plant in the field and is drilling wells with electrical power now in order to test this prime mover against steam. The power is taken from the present plants in the field as the new electric plant will not be ready until late this year or early in 1925.

The Texas Co. has definitely abandoned the Dutton Basin well that has been drilling for nearly two years about 30 miles south of Moneta in Fremont County. Five years ago the Ohio and Midwest drilled three dry holes southwest of the Dutton Basin on a structure and The Texas Co.'s geologists found another a few miles away that looked good and resulted in the drilling of the dry hole. The first Wall Creek sand was passed at 1,720 feet.

Montana Operations

The Hoosier Oil Co.'s well in Carbon County, Montana is having water trouble at 3,300 feet. This well has been slowly drilling for four years and is now thought to be near a pay because as the water came in a showing of black oil came up with it. The well is to pick up the sands that hold oil at Lake Basin at about 3,500 feet.

The Broadwell Co.'s No. 1 on Section 30-35-2 in the Sunburst Field found the Ellis sand at 1,525 feet and will make 25 bbls. natural though the company has decided to shoot to increase. The Sunburst Oil & Gas Co. on the Anderson lease on Section 30-35-1 found the Ellis sand at 1,447 feet good for 25 bbls. This location is well on the northwest side of the field. The Big West Oil Co. on the Allen lease brought in a good producer of 200 bbls. on Section 31-35-1 in the Ellis sand at 1,415 feet.

James W. Stewart, son of Col. Robert Stewart, who is chairman of the board of directors of the Standard of Indiana, has been transferred from the New Mexican operations of the Midwest to Denver where he will be placed as assistant to Vice President H. C. Bretchneider, who is in charge of the land and exploration departments of the Midwest. James Stewart is well and favorably known in Casper, where he entered the oil business as a roustabout in the Salt Creek Field. J. A. Holmes will assume the management of the Midwest operations in New Mexico in the place vacated by Mr. Stewart.

John L. Havice, secretary and treasurer of the Kasoming Oil Co. has resigned and will go to Independence, Kans., to take up his old position with the Prairie Oil & Gas Co. there. Mr. Havice came to Wyoming and took over the position of secretary and treasurer of the Kasoming when that firm and the Bair Oil Co. were in straightened circumstances. He has built up the companies into a strong firm.

Wyoming Wildcats

The wildcatters in Wyoming are preparing to close down for the winter in the isolated districts. Some are to be kept going as long as possible and these are located along the route traversed by the Sinclair Pipe Line Co.'s line from Teapot to the State line. A wildcat near Douglas, on the Irvine structure, Section 21-31-70, south of the Platte River, is active with the hole at 2,075 feet and the hole is through the first Wall Creek sand, finding water there. This operation is being done by the Big Sioux Oil Co. of South Dakota.

Another well is drilling near Glenrock, in Platte County, and a well has been started on the Jay Em structure, in Goshen County. These wells are to be drilled during the winter because the operators are anxious to know what the structures hold for, if production is found, it would be a comparatively easy matter to connect with the Sinclair pipe line for a market.

The wildcat starting south of Casper, about 2 miles from the city line, is spudding and will go to 3,000 feet unless production is found sooner. This well is between Casper and the mountain range on a structure that carries the Parkman sandstone on the surface so the Wall Creek sands should come in regular order at about 2,000 to 2,500 feet.

On Section 34-20-78 in the new Rex Lake Field, in Albany County, the Ohio Oil Co. completed its third producer in the Muddy sand and the well will make 250 bbls. The sand came in at 3,330 feet and the well is now connected with the tanks.

Colorado's Operations

The Ohio Oil Co. has started drilling on its second well on the Haystack Dome near Longmont, Colo. The first well is drilling at 3,330 feet and the second well is to be drilled to test another part of the structure. This structure appears good enough to warrant starting a second well instead of waiting for the first hole to reach the sands.

The Midwest Refining Co. started drilling again on its discovery well on the Iles Dome, Moffat County, Colorado. This well is now believed to have had its first oil in an upper sand other than the Lakota and that deeper drilling will show another sand and more production.

Near Eckert, Delta County, Colorado, the Transcontinental Oil Co. has struck a flow of gas estimated at 200,000 feet at 700 feet deep. This test is being drilled by the Mid-Colorado Oil Co. and is intended to go to the Dakota sand expected about 2,000 feet. The gas flow is not considered as a commercial flow but is a good indication. The location is on the western slope in the central part of the State.

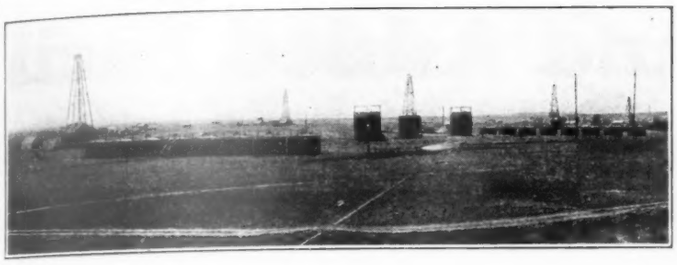
New Mexico Producer

The Santa Fe Oil Co. drilled in a 300-bbl. producer on the Rattlesnake Dome in New Mexico, finding the Dakota sand at 732 feet and the well is making that amount of production by flows to tankage regularly. The oil from the new strike is 64 gravity, the same as the Midwest well on the Hogback Dome about 17 miles east.

The Midwest wildcat on Section 16-4-69, on the Berthoud Dome, in Colorado, found a shale flow of oil and gas at 3,137

(Continued on Page 212)

PERFECTION VAPOR PRESSURE TANKS
WOOD, AND BOLTED STEEL TANKS



On the left is bird's eye view of the Cromwell pool, Oklahoma. This pool is underlaid with a heavy gas sand which has given Perfection Vapor Pressure Flow Tanks an excellent opportunity to demonstrate their worth. The tanks shown in the picture are all PERFECTIONS as are most of the lease tankage in that field.

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But getting it to the boilers at the right pressure from the lease itself always presented some trouble until Perfection Flow Tanks pointed the way.

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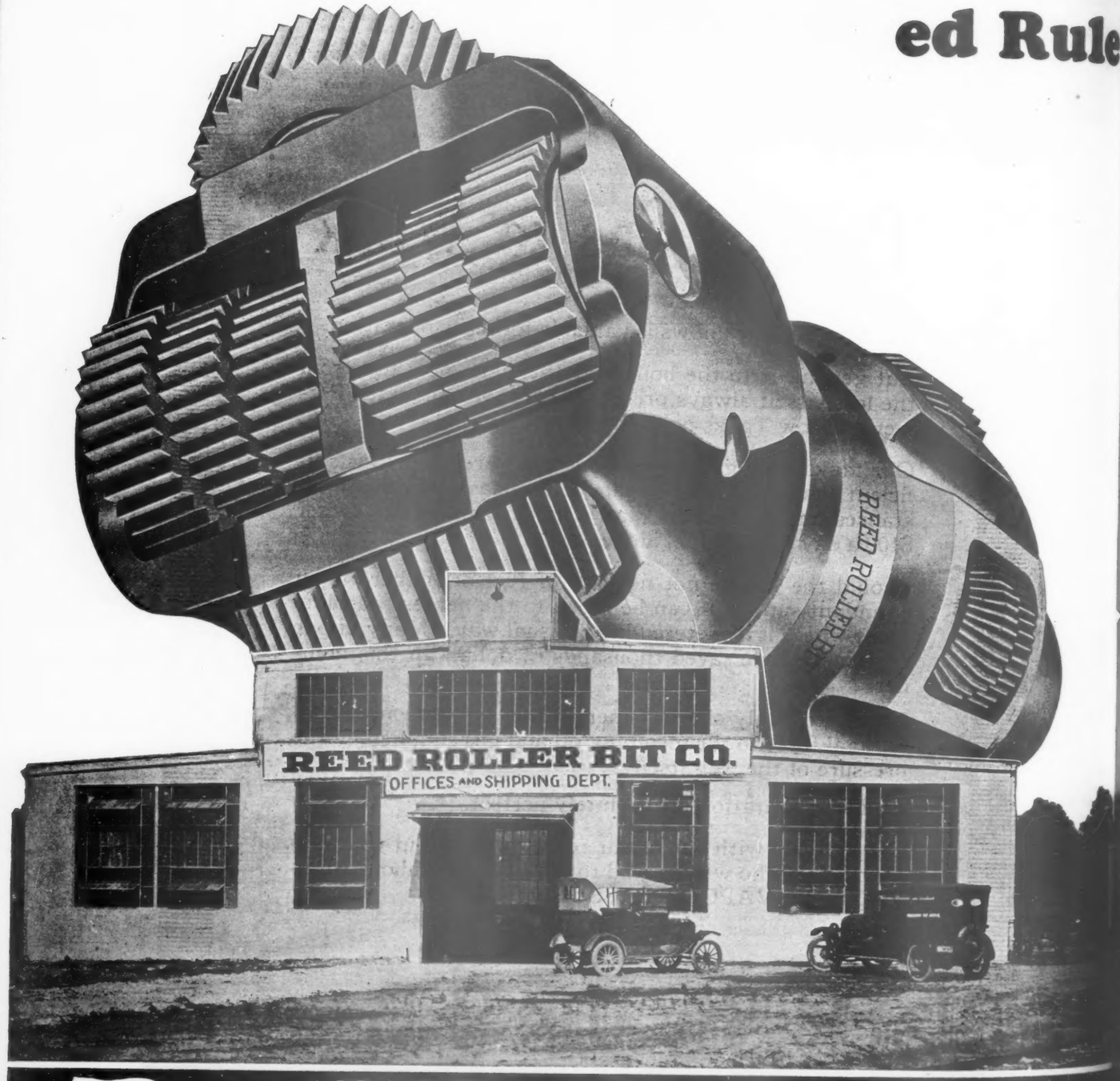

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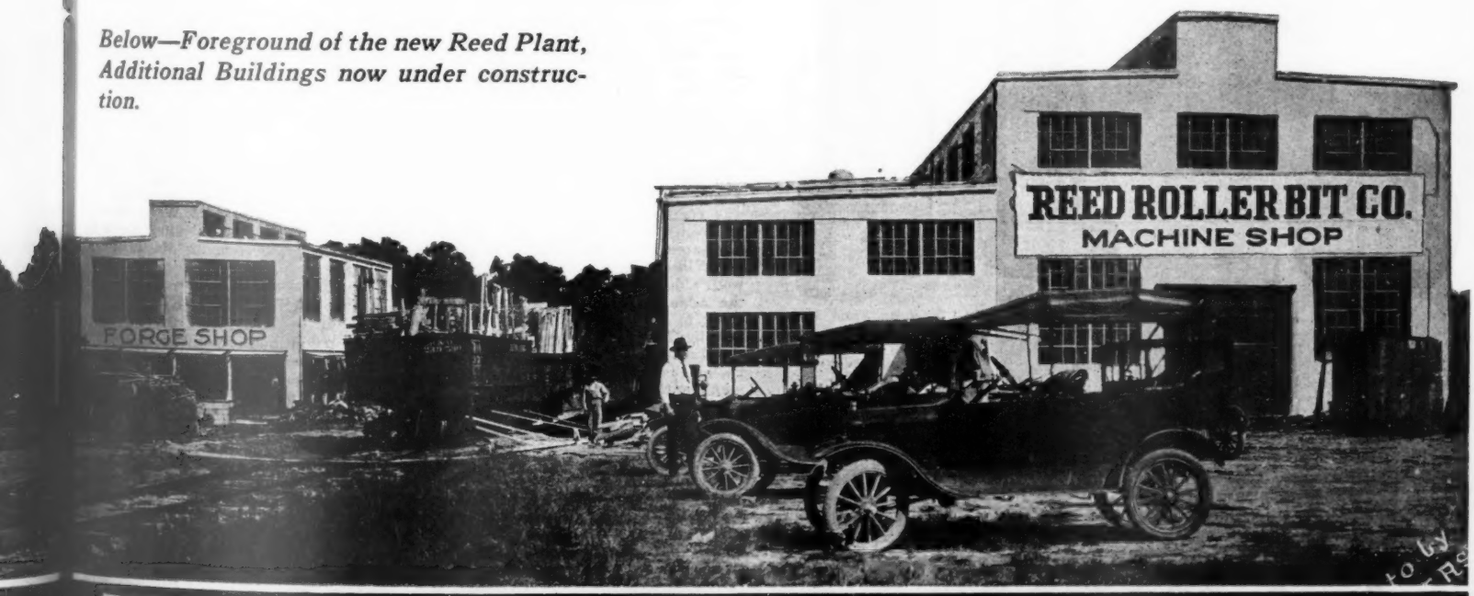
Below—Foreground of the new Reed Plant, Additional Buildings now under construction.



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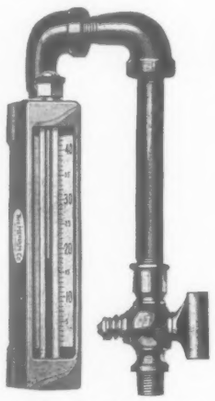
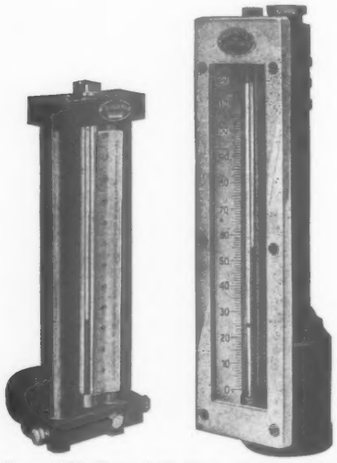
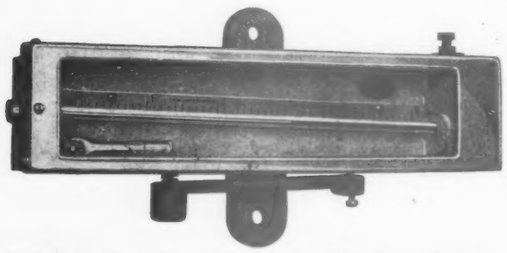


Well Type Manometer in Two Sizes Range to 140" Water Pressure. Bulletin No. 244



Type "B" Type "A" Test or Flow Meters Range to 120" Water Pressure. Bulletin No. 245.

Gauge Shock Absorber. Bulletin No. 242.



Horizontal Draft Gauge Range to 1½" Water Pressure. Bulletin No. 246.

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Purchasing Power Of 1913 Dividends Greater Than 1923

When wages are figured in their relationship to the purchasing power of the dollar, as those of many of the large oil companies now are, it seems only reasonable that dividends should also be considered in that relationship. On this basis the dividends disbursed by Standard Oil companies in 1913 could buy more goods than in any year since the dissolution.

Based on Bradstreet's index numbers of commodity prices for 1912, the purchasing value of the dollar in 1913 was almost par, and the $107,795,361 in cash disbursed in that year would buy more goods worth $107,471,975, while the largest actual cash disbursements in one year—$138,423,295 in 1923—would buy goods worth only $95,096,704. The disbursements for 1923 could buy less, in fact, than those for 1922.

In other words, the purchasing power of the dividends paid by the Standard Oil companies in 1923 was smaller than that of the dividends paid in 1922, or in 1913.

The following table shows actual cash disbursements by the Standard Oil companies each year since the dissolution, the comparative purchasing power of the dollar, and actual buying power of dividends, based on that power:

Year—	*Actual Standard Oil cash dividend payments	†Value of dollar in cents	Equivalent purchasing value of Standard Oil dividends
1923 ..	$138,423,295	68.7	$95,096,704
1922 ..	129,039,865	75.8	97,812,218
1921 ..	115,294,292	80.8	93,157,788
1920 ..	115,776,793	48.2	55,804,424
1919 ..	105,301,477	49.2	52,103,527
1918 ..	103,480,916	49.9	51,636,977
1917 ..	99,957,923	58.7	58,675,301
1916 ..	98,627,875	77.6	76,535,231
1915 ..	62,401,204	93.2	58,157,922
1914 ..	63 692,884	103.0	65,603,671
1913 ..	107,795,361	99.7	107,471,975
1912 ..	51,686,634	100.0	51,686,634

*Figures compiled by Carl H. Pforzheimer & Co. †Based on 1912 dollar; yearly changes corresponding with Bradstreet's index numbers of wholesale prices of 108 commodities. Index number for 1912 was 9,1867.

CENTRAL WEST

(Continued from Page 68)

with a hole full of water and have experienced quite a time shutting the water off, but after bridging and underreaming they finally succeeded in getting the pipe tight and drilled out the bridge and the well filled up, with all indications of an excellent well.

Fred Hartman, Joe S. Young and C. H. Parriott, all well known operators in many of the Eastern fields, have the Courter farm of 280 acres, joining the Adams farm, upon which the big well was completed. The Courter farm lies just south of the Adams farm and across a 40-acre farm from the good well on the Winters farm. They are spudding a well which is an offset to the south of the Adams well. This firm also has an offset to the good well drilled some time ago by Phipps, Blosser and others on the Lovilah Chapman farm, in Section 25, as the Courter farm joins the Chapman on the north.

W. M. Price and others have a rig up for an offset to the Bridgeport sand well of the Clara Adams farm, the rig being due east and on the southwest corner of the Clara Armstrong 10 acres, in the southwest quarter of the northwest quarter of Section 24. Same parties have started a well on the Van Wright farm, Section 13, and northeast from the Clara Adams well. Sargent and others are down 500 feet at their well on the Stillwell farm, Section 7, and northeast of the wells on the Holson-Dorney farms.

Have a Bad Job

Henley and others have a bad job on the V. P. Compton farm, Section 11, Wabash Township, close to Allendale. They dropped their pipe at around 1,400 feet, and will have several joints and the tools in the hole. Smith, Deweese and others are rigging up for their test on the Buchannan farm, in Section 10, Wabash Township, and west a short distance from Allendale.

The Arkansas Fuel Oil Co. Hartman & Parriott's No. 1 on the Earl Leighty farm, Section 8, and 600 feet from the east line and 200 feet from the south line and an offset to No. 7 on the Dell Wright farm, which made 200 bbls. flush when drilled in is now reported doing 30 bbls. on the jack. This well is two locations east of the dry hole that the Ohio Oil Co. drilled on the same farm, but which had a showing and would have made a small pumper. The same interests have their well on the Otis Matheney farm, in Section 18, Friendsville Township, same county, to a depth around 800 feet and is 1,120 feet from the north line of the farm.

The finding of the Bridgeport sand carrying oil in Wabash County together with the Biehl and Jordan sands, make that part of the county look very inviting and there is no question about the Allendale Field extending to the south and west.

There will be several wells started and many locations made in the next few days to the southeast of Allendale owing to the Winters and the Bridgeport wells and the spring should see that section a real field. There is no question as to the drilling of the territory lying south and southwest of Allendale and between the old field and the new field as this is all good looking and is held by short time leases and there is no chance of the owners letting it get away. There are some real trades being made and at fairly good prices, taking the price of crude as it is. Most of the operators seem to be inclined to develop their properties slowly and be ready for the better time which is sure to come.

Other Illinois Wells

In Lawrence Township, Lawrence County, the Silurian Oil Co.'s No. 13 located 900 feet from the highway and 750 feet from the west line of the N. M. Rogers farm, Section 14, produced 12 bbls. flush, but should remain a 7-bbl. producer for an indefinite time, according to wells in the immediate vicinity. This well found the Kirkwood sand from 1,525 to 1,566 feet; the Tracy sand from 1,600 to 1,657 feet and the famous McCloskey sand at from 1,725 to 1,764 feet. In Dennison Township, same county, S. J. Gee, Sr., is drilling his No. 13 on the Harriett Leighty farm, Section 3.

In Parker Township, Clark County, the second well of Gillette and others on the H. & E. Echard farm, Section 34, was dry at 460 feet, while Nos. 1 and 3 are drilling. In Johnson Township, the Ohio Oil Co.'s No. 16 on the Z. E. Brant, Section 26, was dry at 1,969 feet. In Casey Township, Chrysler and others are drilling No. 1 R. E. Stratton, and R. G. Holmes and others are drilling No. 2 Charles Lowe, both in Section 25.

In Honey Creek Township, Crawford County, Craig, Lowrie and others are drilling No. 16 Charles J. Weger, Section 14. W. W. Splane is drilling No. 9 D. C. Brubaker, Section 22, Martin Township.

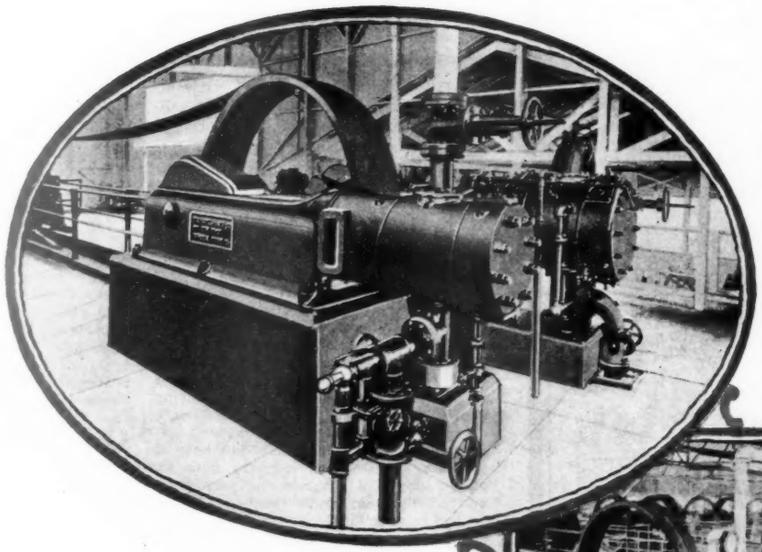
EASTERN FIELDS

(Continued from Page 66)

ment and no market for the gas, but this is a secondary consideration if the gas is there in quantities to warrant the outlay in extending a line into that section.

Southwest Pennsylvania

Gassers are still the rule in Greene County. On Rufus run, Washington Township, the Waynesburg Home Gas Co. has a gasser good for 2,000,000 feet at a test on the A. Muckle farm, in the fifth sand. In the same township, the Carnegie Natural Gas Co.'s test on the Thomas Stewart farm is a gasser in the Gordon sand. In Spring Hill Township, the Stockdale Oil & Gas Co. has a gasser in the Big Injun sand at a second test on the William Stockdale farm. In Perry Township the Philadelphia Oil Co.'s test on the E. Lemley farm is dry in the lower sands. They will test for oil in the Big Injun sand. In Gilmore Township, the same company has a Big Injun sand gasser on the J. B. Fordyce farm. In Greene Township, Beaver County, P. R. Laughlin has drilled a test on the J. P. Swearingen farm through the sand. It is a duster.



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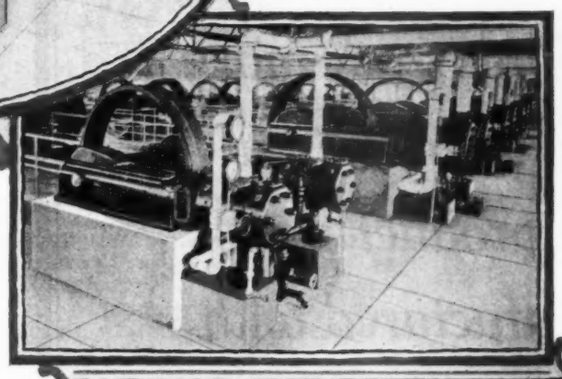

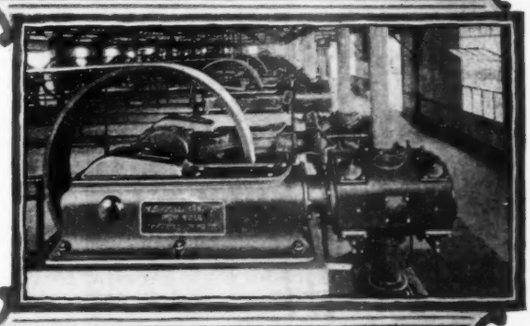

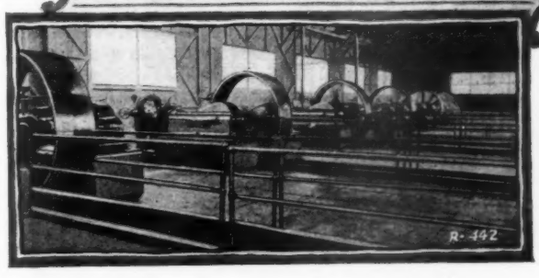

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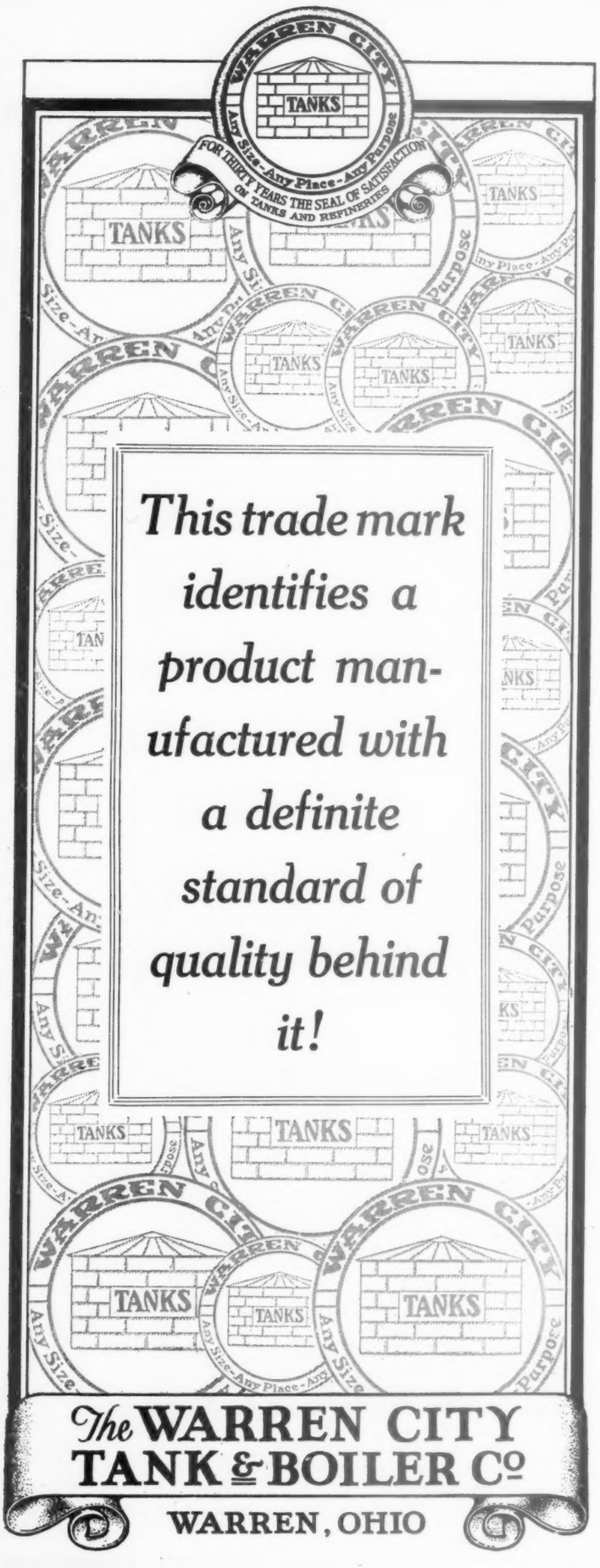
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ENCOURAGEMENT, NOT REPRESSION, DUE OIL INDUSTRY FROM PUBLIC

By Richard F. Grant

President Chamber of Commerce of the United States. Before Oil Exposition and Congress, Tulsa, Okla., October 6, 1924

Perhaps no industry typifies better the vitality of American business than that of petroleum. The glamour of a few lucky strikes causes us to lose sight of the patient, costly process of discovering new fields, of the hundreds of millions of dollars expended in the fruitless drilling of dusters; of the unavoidable waves of overproduction that follow the discovery of new fields, and resulting depressions which weigh heavily on the entire industry. Instead of being an easy business with certain returns, the oil industry is one fraught with the greatest risks.

Here are gathered representatives of your industry earnestly discussing in addition to the technical questions of production, refining and distribution, the difficulties of heavy taxation, of burdensome regulatory legislation, of measures to prevent overproduction with resulting depression in prices, of the maintenance of an ample supply for increasing demands—in fact, the whole problem of providing our modern industry with an ample supply of gasoline and petroleum, and at the same time keeping the industry from going bankrupt. One could not be in such an atmosphere without being impressed with the difficulties that confront you and your earnestness and sincerity in endeavoring to solve them. It is a splendid illustration of the modern American method of individual solution of an industry's problems—of self government in industry.

Yet there are those who seemingly have little sympathy with your activities and efforts in carrying on this industry. The files of State and Federal legislatures are weighed down with proposed legislation embodying all sorts of regulation of the various branches of the industry, and of schemes for increased taxation. They range from a mild form of regulation to complete nationalization of all of our power generating resources, such as coal, oil, gas and water power.

It is regrettable that many of our legislators, State and National, and public officials have not seized the opportunity of meeting you here and becoming permeated with the real atmosphere of your industry. I am glad to see among you a few of our legislators and I hope that they will carry back and pass on to their colleagues an understanding of the difficulties and needs of the petroleum industry. Another year I hope to see a sizeable delegation from our legislative branch of the Government as well as from our technical bureaus.

It is also unfortunate that the great mass of gasoline and petroleum users could not come here and get into this atmosphere. The great mass of the public lacks the opportunity to learn the real facts of your industry. About the only time the average citizen, who may be several hundred or even several thousand miles distant from the source of production, thinks of the oil industry is when he drives up to a gas filling pump, and reaches in his pocket to pay his bill—and this is not a state of mind conducive to clear or disinterested thinking.

The majority of our public citizens are well intentioned toward industry; and in spite of a few demagogues, our legislators desire to enact wise legislation.

I have referred to the development of your industry. Concomitantly every branch of your industry has witnessed ephocal developments. Your drills can penetrate a mile and a half into the earth's crust. Your oil flows in your own pipe lines from the Rocky Mountains to the Atlantic Coast, from the Gulf to the Great Lakes. Your refineries can now produce more than 300 distinct products from crude petroleum. By improvements in distillation the percentage of gasoline recovered has been greatly increased. Advances in distribution have resulted in the mushroom growth of filling stations that have made a ribbon of our highways. Surely this industry is "meeting the national needs of mankind."

In conclusion, I should like to make an observation to those who do not hesitate to make your industry the target for untried legislation, who feel that repression rather than encouragement should be the public and governmental attitude. Petroleum is an industry that students of modern economic development realize more and more belongs to that special group of industries furnishing the very breath and life-blood of modern industry—the industries that make available the energy that nature through the ages has accumulated and stored—oil, coal, natural gas. It is clear that your product is basic to the processes of our American civilization, and it should be clear that every man, woman and child in our land is directly concerned in the welfare and successful conduct of your industry.

Over $52,000,000 Oil Royalties Paid To Civilized Tribes

By S. E. Wallen

Superintendent Five Civilized Tribes, Oklahoma. Before International Petroleum Congress, Tulsa, Okla., October 7.

"Since leasing the lands of members of the Five Civilized Tribes for oil and gas mining purposes first began in the Indian Territory, the Indian Office at Muskogee has collected for individual restricted Indians more than $52,000,000 in oil royalties.

"This refers to restricted lands, only, which is now just 15 per cent of the lands originally allotted to members of the Five Civilized Tribes. If one-eighth of the income from these restricted lands, which is the royalty, amounts to over $52,000,000, then adding to this the other seven-eights we have the sum of over $400,000,000 which has been developed on the restricted lands of the Five Civilized Tribes alone. This being 15 per cent or one-seventh of the lands comprising the Five Civilized Tribes, seven times, or all of the lands in this territory, would mean in round numbers that the sum of $2,800,000,000 has been produced from the lands as a whole. Taking this as a basis and adding thereto the great development in the Osage Nation, the Ponca, and other Indian Agencies, including all of the surface machinery for development—the railroads and pipe lines, and salaries paid in producing the oil—we have reached a business proposition amounting to practically $10,000,000,000. It is believed that the development of oil in this vast territory is yet in its infancy, and that the future will see untold discoveries of even greater fields."

NEW ZEALAND OIL

An Australian company is about to undertake development work in Taranaki district, a few miles from the town of Inglewood, New Zealand. The capital is said to be £50,000. Work on oil deposits in Taranaki district has been carried on intermittently for many years. Much local and considerable English capital has been expended in prospecting the fields. Oil has been won and reported to be of excellent quality. A refinery was erected at New Plymouth by an English company to treat the crude oil won from local wells. It was subsequently dismantled and sent to the Persian oil fields. Oil prospects have been found and, in some cases, worked upon, on the West Coast of the South Island, in the Bay of Plenty, Poverty Bay and Hawkes Bay districts in the north. Shale has been worked and oil extracted therefrom at Orepuki, in the extreme southern part of the South Islands.

LUMNITE CEMENT
for concrete in Cold Weather

THE rush often necessary to forestall winter can be avoided by the speed possible with Lumnite. Your big job may be shortened weeks or months by completing in a few hours those essential concrete parts for which you, heretofore, have had to wait weeks for the concrete to attain its strength.

Atlas Lumnite Cement makes twenty-eight-day concrete in twenty-four hours without the use of artificial accelerators. Lumnite Cement, because of its principal ingredient obtained from high-grade aluminum ore, Bauxite, develops at twenty-four hours greater strength than that developed by other building cements at twenty-eight days.

For work that must be done in cold weather, Lumnite has the additional advantage that it can be used in much colder weather than other cements. It is less subject to injury from frost for two reasons:

First, the rapid hydration or early hardening of Lumnite Cement brings the concrete, in a few hours, to a point in its curing beyond the danger of frost attack. Concrete made with other cements does not reach this point before two or three weeks.

Second, this rapid hardening, a chemical action, produces in Lumnite Cement concrete very considerable heat. This is an additional insurance against the attack of frost. The setting of Lumnite Cement differs from that of Portland Cement in that the setting takes place first in the interior of the mass, generating this heat, which, then, works outward to the surface.

Lumnite Cement is not "quick setting," but allows the normal time required for mixing and placing in forms. Its high early strength develops with great rapidity after the initial set has been attained. It is adapted to the various uses of concrete and is mixed and manipulated in the same manner as Portland Cement.

While Lumnite is a new product in America, cements similar to Lumnite have been used successfully in Europe for more than ten years, wherever in concrete construction there is required high early strength or resistance to the chemical action of sea water or sulphate-bearing ground water.

THE ATLAS LUMNITE CEMENT CO.

25 Broadway, NEW YORK CITY

Brown-Marx Bldg., Birmingham 134 S. LaSalle St., Chicago

THE ATLAS LUMNITE CEMENT COMPANY — ATLAS LUMNITE CEMENT — NEW YORK, N.Y.

O.G.J

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Please send your booklet on Lumnite, also detailed information on Lumnite's use for_____

*Name*_____

*Address*_____

Continuous Oil Field Operation

In the Homer, Louisiana, Field six All Reid Pumping Plants, similar to the one illustrated above, have established an enviable record for continuous operation.

From August 31, 1923, to February 16, 1924, each of these six plants was in operation an average of 4051 hours with an average shutdown time, due to all causes, of only five hours. Less than half of a tour in six months!

Each plant consisted of a Reid Gas Engine and a Reid Band Wheel Pumping Power, 25 and 30 H. P. engines and 16 and 18 foot powers being used. Each plant pumped up to twenty wells, the average being thirteen wells, depths running from 1000 to 1400 feet. About 11,000 feet of rod line was handled by each plant.

If you are interested in hearing further about this or similar installations, write us and we will gladly furnish you additional information.

See the exhibit of Reid Products at the Exposition, located in the booth of the Frick-Reid Supply Co., Section 1, Lot K.

Joseph Reid Gas Engine Company
Oil City, Pennsylvania, U. S. A.

Branches and Agencies—Marietta, Ohio; Logan, Ohio; Newark, Ohio; Ft. Recovery, Ohio; Shreveport, La.; Charleston, W. Va.; R. B. Moore, Bolivar, N. Y.; Bradford Supply Co., Robinson, Ill.; Frick & Lindsay Co., Bradford, Penna., and Kentucky Distributors; S. R. Shoup, 708 Pacific Electric Bldg., Los Angeles, Cal.; Oklahoma, Kansas, Texas, Arkansas and Wyoming, Frick-Reid Supply Company, Tulsa, Okla., and Branches.

Branch Shop—TULSA, OKLA.

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Conservation Chief Invites Cooperation On Oil Regulation

By F. M. Conner

Conservation Officer, Oklahoma Corporation Commissioner, Before International Petroleum Congress, Tulsa, Okla., October 8, 1924

"It is my candid opinion great conservation can be obtained through cooperative educational procedure than by citations and fines. Such educational procedure can only result through complete and effective organization on the part of the oil industry and through honest cooperation on the part of both such organization and the regulating body. Sentiment is the most important factor in corrective regulation. The organization has a distinct duty to perform in inculcating conservation policies among the men on the derrick floors and the conservation department to assist in forming such policies based on facts and insisting on their enforcement where necessary. Therefore, through cooperation and not through antagonism may we best serve all parties interested. I say to you in all candor that the time is here when the oil industry must interest itself collectively in its regulation. A proper interest in their regulation might serve to fortify the industry against extremists who may in the future desire to ride such industry into some political position, a feat which has been accomplished in the past.

"Experience has served to convince me that the interests of the people and the industry can best be served by a research department, or at least by adding to the conservation department a qualified petroleum engineer, whose duty it would be to compile authentic information and facts concerning producing methods, such as would be of valuable import not only to all the oil operatons and the conservation department, but perhaps it would not be amiss to have such information available for our law-making bodies, in order that it might operate as a regulator for them. As a further proviso, such qualification should be demanded of the engineer as would preclude the possibility of some disqualified person being placed in the position in payment of some political debt.

"I firmly believe the next few years will bring many improved methods of producing oil. Many remarkable developments have been made in the past year. Effective cementing processes are coming into popular use, and we find that cement, when properly mixed with an accelerator, has been used effectively in sealing off gas and oil and a setting of the cement is accomplished even under salt water. This alone has been of vital importance to operators, as in some cases it has resulted in saving a string of casing, when deepening to another horizon. The flooding process in Pennsylvania has resulted in approximately 100 per cent additional recovery in abandoned fields. Compressed air for use in this connection is still under experiment. Even the sinking of shafts and removing the oil through heat and mining process is being given serious consideration, and returning to our own environment, we are today looking for help to conserve gas in Cromwell. Producing methods now are, and will for some time to come, be largely experimental and what all concerned need most would seem to be information which can only be obtained through careful and unbiased research and study."

LARGE LINE NEARLY READY

NEW YORK, Oct. 4.—Lago Petroleum Co.'s pipe line from La Rosa to Salina, Venezuela, is nearing completion, and the present plans call for the running of 15,000 to 20,000 bbls. of oil a day through the line by October 15. The first 1,000-bbl. unit of the company's topping plant at Salina is completed. At this plant the crude oil will be treated for the purpose of getting gasoline and fuel oil. Two of the company's tankers have arrived at Salina for the first shipment of oil.

INDIA NEXT TO CHINA AS MARKET FOR OIL

British India, next to China, is the most important market in the Far East for American petroleum products, according to A. T. Coumbe, Jr., Mineral Division, Department of Commerce. The country, with its population of 318,000,000 consumes annually over 470,000,000 gallons of petroleum. About 60 per cent of the demand is met by local production, while the balance is imported principally from the United States, the Dutch East Indies and Persia.

The local production, which averages about 8,000,000 bbls. annually, comes largely from the Snigu and Yenangyaung fields of Burma, the Attock Field of the Punjab, and the Badarpur and Digboi fields of Assun. Drilling in these fields is carried on by both cable and rotary outfits. The operating companies make every effort to introduce modern methods that tend toward economical production. The electrification of the Yenangyaung Field and the establishment of gas absorption plants in this same field as well as in the Singu Field are recent examples of this policy.

The crude oil, produced largely by the Burmah Oil Co., Ltd., and its connections, is conveyed by short pipe lines or tank barges to refining centers near Rangoon, at Debrugarb and Digboi in Assam and at Rawalpindi in the Punjab. These refineries, about 20 in number and with a total daily capacity of 30,000 bbls., are of different classes and range from skimming plants to complete refining units.

Imports of petroleum products from foreign countries which totaled 180,000,000 gallons in 1922 and 184,000,000 gallons in 1923, provide 40 per cent of the annual demand. The mineral oils received in 1923 were 77,000,000 gallons of kerosene, 86,000,000 gallons of fuel oil, and 21,000,000 gallons of other kinds, principally lubricating oil. The United States is the chief source of the imported kerosene and lubricating oil, while the Dutch East Indies is a secondary source. Persia supplies the bulk of the imported fuel oil. The principal importing ports are Calcutta, Bombay, Karchi and Madras.

The two principal items of export are gasoline and paraffin wax and these were valued at over $32,000,000 in 1923. The gasoline which totaled about 24,000,000 gallons in 1922 and 23,000,000 gallons in 1923, was shipped principally to England and other European countries. The paraffin wax exports, averaging 28,000 tons annually, go largely to China, Japan and the United Kingdom. Practically all of the petroleum products disposed of in the export trade are the output of the Burma refineries and are shipped from Rangoon, where there are storage facilities for about 9,000,000 gallons.

Although British India has a petroleum reserve of 995,000,000 bbls., according to the United States Geological Survey sufficient to last over 100 years at the present rate of yield, the production will hardly increase rapidly enough to meet the annual increase in demand. Consequently this will have to be supplied from larger imports, especially from the United States, as the Dutch East Indies and Persia, secondary sources of supply, will evidently not be able to respond to material increases in their exports. As conditions improve in Russia, that country will obtain a share in the market, especially for kerosene. Because of these circumstances, it is believed that American petroleum products will find increased demand in India in future years.

SUES STANDARD FOR DOG MEAT

MIDDLETOWN, N. Y., Oct. 4.—The Standard Oil Co. in this city was served with a summons by Constable J. J. Sheridan for failure to pay a bill for dog meat of eight months' standing to Sol J. Ellerin, a local provisioner. The case was settled out of court. According to the constable, the company has several dogs at the plant on Sprague Avenue. Through an oversight the bill was left unpaid.

Men Prominent in Petroleum Industry Exposition Visitors

E. V. Long, vice president of The Calorizing Co., was one of the many visitors from Pittsburgh present on the opening day of the exposition.

Foreign visitors included three Egyptian Government officials, whose official residence is in Cairo, Egypt, but who are getting their impressions of the California fields at present from their temporary location in Berkeley. They were E. H. Fahmy, M. Abozeid and E. H. Ez-Difrawi.

F. H. Thomas, vice president of the C. & G. Cooper Co., Mt. Vernon, Ohio, was one of the first visitors to register at The Oil and Gas Journal booth. He was busy during the day meeting his old frends and making new acquaintances who were attracted to his exhibit.

J. C. Lindsay, general manager of the Marine Oil Co., Casper, Wyo., declared he was going to take enough time to see the Exposition thoroughly. He asserted that the only way to accomplish this was to take a quick glance at the grounds as a whole and then go through each building carefully, finishing with the arcades and the outside exhibits.

Californians were well represented on the opening day. H. S. Houghton, production manager of C. F. Braun & Co., Alhambra, and G. M. Jackson, sales manager of the same company, were making the acquaintance of men from other sections.

Biggest Show of Industry

Erle P. Halliburton, of the Halliburton Oil Well Cementing Co., Duncan, Okla., did not bring his mixer, pumps and trucks which he displayed at the first Exposition. He was busy greeting old friends, however, and showed his friend, A. A. Perkins, of the Perkins Oil Well Cementing Co., Los Angeles, the Exposition. Both agreed that it was the biggest show ever held by the oil industry.

D. S. Faulkner, president of the Union Tool Co., Torrance, Cal., took his stand on the floor of the big new rotary drilling rig in the National Supply section.

J. A. Geismar, vice president and general manager of the National Supply Co., Toledo, Ohio, was kept busy greeting friends and explaining the new features of the big rotary.

John R. Dallerup, general sales manager of the Reed Roller Bit Co., Houston, Texas, was one of the first supply men to reach the grounds Thursday morning. E. B. Wiggins, manager of the West Coast branch, Los Angeles, was active in the Reed booth.

J. H. Barr, chairman of the board of directors of the National Supply Co., New York, was a prominent figure in the National Supply section. Mr. Barr was the center of a group of old time operators and supply men who relived the old days.

St. Louis manufacturers were represented by A. M. Deacon, vice president of the St. Louis Surfacer & Paint Co., and C. L. Harrell, vice president of the Sterling Steel Co., East St. Louis, Ill. W. F. Exner, secretary of the St. Louis Steel Casting Co., and John K. Broderick, president of the Broderick & Bascom Rope Co., were among the other St. Louis supply men to see the initial effects of the second Exposition.

O. P. Clark, vice president of Clark Brothers Co. of Olean, N. Y., was one of the first men to register at The Oil and Gas Journal booth.

Technical Men Present

Technical men were not lacking in the registration of visitors. H. W. Bell, supervisor of the minerals division, Department of Conservation, State of Louisiana, Shreveport, was much interested in the Exposition. Roy R. Morse, professor of geology, University of California, Berkeley, enjoyed the material in the scientific and technical exhibits. R. G. Hamaker, chief engineer of the Humble Oil & Refining Co., Houston, did not slight any of the new features of the show.

Brass manufacturers were prominent among the men attending the Exposition on the first day. E. J. Thomas, president of the Progressive Brass Manufacturing Co., Kansas City, Mo., got an early start for the 10-day show. A. W. Wheaton, Jr., president of the A. W. Wheaton Brass Works, Newark, N. J., was making new acquaintances among the supply men and oil men during the first day. C. L. Reeder, manager of A. Y. McDonald Manufacturing Co., Dubuque, Iowa, was another supply man who got an early start Thursday.

W. B. Jennings, chief engineer of the Hope Engineering & Supply Co., Mt. Vernon, Ohio, was telling about the new equipment made by his firm.

H. D. Murray, chief engineer of the Bessemer Gas Engine Co., Grove City, Pa., was a prominent figure at that company's exhibit.

H. A. Meyer, assistant to the general manager of the Prairie Oil & Gas Co., Independence, Kans., made an appearance at the Exposition on Thursday and was kept busy greeting his hosts of friends. W. L. Kistler, president of the Producers & Refiners Corp., Tulsa, visited the exhibits and greeted friends in the company booth.

J. A. Fenwick, of the Fenwick-Reddaway Manufacturing Co., Newark, N. J., considered the Exposition a remarkable opportunity to get in touch with the recent developments in the oil industry.

J. E. Elliott, president of the Elliott Core Drilling Co., Los Angeles, showed the equipment and sample cores used in the new deep fields of the Los Angeles basin. He reported considerable interest in coring on the part of Mid-Continent producers. Mr. Elliott declared that service was the most important factor in the upbuilding of the oil industry.

H. A. Schauer, coupling engineer for the A. O. Smith Corp., of Milwaukee, Wis., was making new acquaintances under the guidance of the oil country sales forces.

Harry I. Miller, district sales manager for the Detroit Graphite Co., Chicago, was one of the first arrivals at the Exposition grounds.

French Oil Men Present

Among the French oil men were Pierre Lesimple, of the Aquila Franco-Romana, with headquarters in Paris, and Leo Teyssot, engineer with the Societe de Napthe Limanowa, headquarters in Paris. Mr. Lesimple has spent several months in the United States, chiefly in California, where he has been interested in studying material and investigating cracking processes and the construction of gasoline-plants. Mr. Teyssot is particularly interested in drilling operations, and has spent considerable time in comparing the rotary and cable tool methods. He also has been investigating gasoline plants. Mr. Teyssot expects to go to Poland for his company in a few months, while Mr. Lesimple will go to Rumania. They both declared that the Exposition was an education in itself.

P. C. Jones, president of the S. M. Jones Co., Toledo, Ohio, was one of the first to register at The Oil and Gas Journal booth.

R. C. Alden, superintendent of the Landreth Gasoline Co.'s plant in the Ibex Field, near Breckenridge, Texas, reported that his production recently had exceeded 44,000 gallons daily consistently.

W. W. Fondren, vice president of the Humble Oil & Refining Co., Houston, Texas, was one of the Texas representatives to arrive before the opening of the Exposition. Mr. Fondren is interested in the standardization questions that have been brought up in the committees that held sessions before the Exposition and during the latter part of the week.

L. F. Baash, president of the Baash-Ross Tool Co., Los Angeles, was one of the earlier arrivals at the exposition as was also D. C. Beckett, secretary of the Meriam Co., Cleveland.

Producers were not lacking in the list of registrants. Lyman Clark, field superintendent of the Union Oil Co. of California, came down from the Fort Collins, Colo. activity where he has been in charge. W. J. Brundred, president of the Brundred Oil Corp., Oil City, Pa., and L. L. Brundred, vice president of the same company, Ottawa, Kans., and Glenn C. Littlefield, president of the Bessemer Oil Co., Casper, Wyo., were among those attending the Exposition on the first day.

Carter Oil Co. officials in Tulsa were glad to greet Joe O'Brien, general superintendent for the Romana-Americana Petroleum Co., who returned for the Exposition after an absence of three years. Mr. O'Brien was formerly connected with the Carter Oil Co.

High Officials at Show

John M. Wilson, president of the National Supply Co., Toledo, Ohio, was one of the enthusiastic National officials to greet visitors in the vicinity of the northwest corner of the Exposition grounds where his company has a large variety of drilling equipment displayed, including many distinctly new developments.

Among the pipe line officials to register during the first day of the Exposition was L. D. Hibbs, general manager of the Crusade Pipe Line Co. of El Dorado, Ark.

K. P. Ellis, vice president of Hill, Hubbell & Co., San Francisco, Cal., makers of paints for the oil industry, was getting acquainted with the Mid-Continent consumers and renewing friendships established on the Pacific Coast.

Kentucky operators were represented by J. M. Stevenson, president of the Pyramid Oil Co., and the Rex Oil & Gas Co., of Winchester, Ky., and L. C. Young, vice president of the same companies. F. E. Bernsen, vice president of the Lucey Manufacturing Co., Chattanooga, Tenn., was active in making the acquaintance of the producers and purchasers who attended the Exposition.

A. W. Manzel, of Manzel Brothers Co., Buffalo, makers of force feed lubricators, was one of the early registrants at The Oil and Gas Journal booth.

M. T. Archer, chief engineer of the National Supply Co., Toledo, Ohio, and R. F. Hill, district engineer, were warm in their praise of the new accomplishment of their concern resulting in new designs in engines and equipment.

Among the allied company officials in the Continental Supply Co. booth were F. B. Severance, vice president of the Tnemec Paint & Oil Co. of Kansas City, Mo., and Harry W. Black, president of the Black Steel & Wire Works, of Kansas City, Mo.

The Fisher Governor Co. of Marshalltown, Iowa, was represented by L. W. Browne, vice president, who was receiving reports from users of his company's equipment in the Mid-Continent.

F. J. Spang, vice president of Spang & Co., of Butler, Pa., registered early during the Exposition and returned to his booth to enlighten the visitors concerning Spang Weldless Jars and other products of his factory. Other Pennsylvania equipment makers included W. G. Swaney, general manager of the Pittsburgh Reinforced Brazing & Machine Co., of Pittsburgh, and G. A. Montgomery, vice president of the Titusville Forge Co., Titusville. T. H. Harvey, vice president of the Ohio Steel Foundry Co. of Lima, Ohio, also registered on the first day.

Opportunity for Technicians

The fact that the Exposition was considered a wonderful chance for technicians in the industry to brush up on the branches with which they were not familiar was seen in the large number of men from the State, Federal and University departments intimately connected with the oil industry. Bronson L. Huestis, inspector of the Bureau of Explosives, New York City, was one of the representatives from the East. The United States Bureau of Mines Experiment Station at Bartlesville, Okla. had several visitors to the Exposition. Among them were the following: L. P. Calkin, chemist; Harold M. Smith, assistant petroleum chemist; I. B. Williams, associate natural gas engineer and E. L. Rawlins, associate natural gas engineer.

D. Armstrong, works manager for the Indo-Burmah Petroleum Co., Ltd., Rangoon, Burmah, India, was taking in the Exposition in a systematic manner, and enjoyed it as representative of the oil industry.

The partnership of Hartman & Skaer, well known Kansas oil operators, was represented in the persons of W. F. Skaer and W. L. Hartman, both of Wichita. These two men have been among the most active producers and wildcatters in that State.

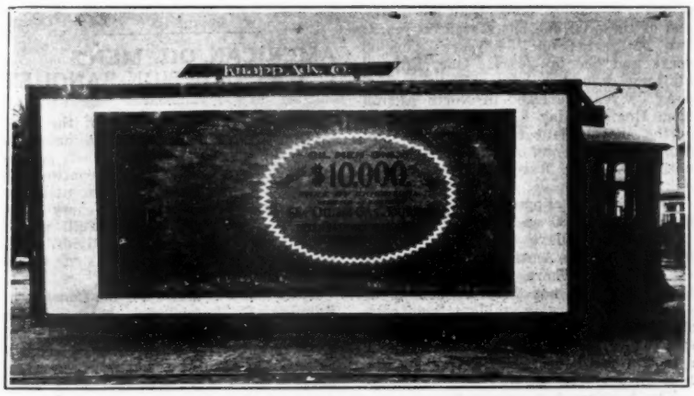
Prominent among the purchasing agents to register were Jack Hammond, purchasing agent for the Roxana Petroleum Corp., St. Louis, Mo., and A. L. Forquer, purchaser for the Amerada Petroleum Corp., Tulsa, who is president of the Purchasing Agents Association of Tulsa.

C. O. Rison, engineer-driller for the United States Bureau of Mines, Muskogee, Okla., was interested in the new developments displayed by the supply companies.

John C. Trefts, manager of Farrar & Trefts, of Buffalo, N. Y., pioneer boiler manufacturers, was being shown around the Exposition by D. F. Connolly, of the D. F. Connolly Agency, Inc., oil field representatives for Farrar & Trefts boilers.

Forest Dorn, of the Forest Oil Co., which operates in the Allegany and Bradford oil fields in New York and Pennsylvania, is an exposition visitor. He was much interested in the presence at the Petroleum Congress of Andrew Pellessier,

CALLING ATTENTION TO REGISTRATION



A street car, elaborately decorated, is traversing the streets of Tulsa daily during the Exposition calling attention to the registration plan of The Oil and Gas Journal.

the Alsatian oil expert. Mr. Dorn was anxious to learn all about the manner in which oil men in Alsace, France, mine crude, as he thinks the day not far distant when some of the eastern shallow fields will be subjected to the mining process for the extraction of the millions of barrels of oil left in the sands after all other known methods of extraction are exhausted.

South America was represented by E. Canada, of the Argentine Government Oil Fields, the company operated by the Government which produces practically all of the oil in that country. Mr. Canada's headquarters in the United States are in New York.

Robert M. McFarlin of the McMan Oil Co. came up from San Antonio to attend the exposition. Mr. McFarlin jumped into national prominence a few years ago when the McMan Oil Co., of which he was the head, sold its production and leases to the Magnolia Petroleum Co. for $36,000,000, one of the largest oil property deals in the history of the industry.

William M. Connelly, vice president of the Mammoth Oil Co., with headquarters in Casper, Wyo., and a member of the board of governors of the Petroleum Congress, arrived in Tulsa last Wednesday to be present at the opening of the big oil and gas show.

Charles E. Markey, popular representative of the Link Belt Co., Indianapolis, Ind., was greeting old acquaintances and making new friends during the first few days of the Exposition.

W. H. McKissick, and Edward L. Rick, designer, were among the representatives of the Dunn Manufacturing Co. of Oxnard, Cal. to explain the new tools and designs in oil well equipment exhibited in their booth.

Petroleum Research

Petroleum research representatives included R. C. Beckstron, professor of petroleum engineering, Colorado School of Mines, Golden, Colo. Scientists in that State are taking renewed interest in the production of oil as well as the promotion of the oil shale industry. Ludwig Schmidt, associate petroleum engineer of the United States Bureau of Mines, Bartlesville, Okla., and M. B. Cooke, refinery engineer, Bureau of Mines, Bartlesville, were particularly interested in the scientific and technical displays as well as the improved equipment displayed in the various booths. E. O. Bennett, natural gas engineer with the Bureau of Mines, Bartlesville, was also one of those to register at The Oil and Gas Journal booth.

Sherman G. Long, general manager of the Metal Barrel Corp., Peoria, Ill., was greeting friends from his booth and giving out information on containers for refined products. H. Hollingsworth, president of the Moser Manufacturing Co., Kane, Pa., was showing his company's line of oil well specialties.

One of the most experienced oil field men in the Rocky Mountain region and one with a wide acquaintance was H. B. Simcox, general manager of the production department of the Mutual Oil Co., Denver, Colo., who registered on Friday and inspected the drilling rigs with friends.

J. M. Shearer, sales manager for the Northern Pump Co., division of the Northern Fire Apparatus Co., of Minneapolis, Minn., makers of rotary pumps, was giving out information on his company's products, in company with George E. Failing and E. E. Wagner, oil field representatives.

J. M. McComb, vice president of the Crucible Steel Co. of America, New York, registered at The Oil and Gas Journal booth on Friday.

UNUSUAL RECORD OF SHOVEL AND TOOL FIRM

A business which has remained in the hands of the descendants of one family for 150 years, the largest concern of its kind in the world and the oldest established business in Boston, is the Ames Shovel & Tool Co. It was founded in 1774 in West Bridgewater, Mass., by John Ames, and at present is in the hands of Hobart Ames, John S., Oakes, and Oliver Ames.

The Ames shovel has been used in every war of the United States from the Revolution to the World War, and has aided in building practically every railroad in North America, as well as throughout the world.

Being located continuously in one district has enabled the Ames Shovel & Tool Co. to educate many of its workmen. Sons have succeeded their fathers in the North Easton, Mass., plant for generations. At this moment there are working daily 55 men who have been in the company's employ more than 25 years, and of these 55 one has served 59 years; two 58 years; one 54 years; one 53 years and one 50 years. One, Edward Slattery, who has been with the company 58 years, arrived in North Easton from England May 8, 1866, began work in the shovel plant two days later and completed 58 years of service last May without having lost a single day by sickness.

An editorial clipped from a paper published in 1880 reads as follows:

"In the old days of 'wildcat' money in the West, the Ames shovels were used as currency. There was a time when their price did not vary 1 cent in 20 years. They were as stable as gold coin, simply because character was worked into each shovel. The name of Ames was a synonym for honesty which passed current all over the world."

The business has grown from a very small beginning until the capacity of all of its plants is equivalent to 5,000,000 shovels a year, a production rate of 12 shovels per minute. In addition to the original factory at North Easton the company now makes shovels in its own plants, Cheltenham, Pa., Beaver Falls, Pa., Anderson, Ind., and St. Louis, Mo. It rolls steel in its own mill at Elwood, Ind., and makes ash handles in its own plants at Oakland and Cumberland Mills, Maine, New Albany and Martinsville, Ind., and Paris, Tex.

The home plant at North Easton, Mass., was established in that community for the reason that water power was available and to this day a great deal of the work is done by water power.

Queen Petrolia for 1924

Princess Kansas, Miss Ramona Marcella Trees, of Winfield, Kans., was chosen Queen Petrolia for 1924 by the judges of the International Petroleum Exposition on Wednesday night. She was crowned at the evening performance at the Exposition theatre.

AMERICAN OIL MEN'S ASSOCIATION BANQUET

"The independent refiners of the Mid-Continent, if they go to market tomorrow and take profits from it, must go together. They cannot longer continue to compete with themselves—to underbid each other's investments; to carry on a ruthless price war. They shall go to market not as a hundred divided and unorganized concerns but as a single profit making corporation."

Thus said Pat Malloy of the Constantin Refining Co. of Tulsa in a speech before 150 members of the American Oil Men's Association at a banquet held in the Tulsa Hotel Tuesday evening, and his declaration was met with thunderous applause.

The banquet of the American Oil Men's Association followed the semi-annual business meeting of the organization with President Andrew J. Callaghan of Jackson, Mich., in the chair. John D. Reynolds, general secretary and counsel was present and took an active part in the brief session.

President Callaghan acted as toastmaster at the banquet and introduced three speakers, Lafe S. Collins of the S. L. Collins Oil Co., Knoxville, Iowa; Harry H. Smith, general secretary and counsel for the Mid-Continent Oil & Gas Association, and Pat Malloy.

Mr. Collins, a fiery orator, lashed the oil industry for weakly standing by while the legislatures in nearly every State piled burden upon burden of taxes upon it.

Harry H. Smith read a paper on industrial relations. Mr. Smith believes not only is it important that the oil business should have the confidence of the public but that oil men and oil companies should have more confidence in each other. The industry needs to be educated before the public is educated.

MID-CONTINENT O. & G. ASSOCIATION BANQUET

More than 500 attended the annual banquet of the Mid-Continent Oil & Gas Association at the Hotel Tulsa, Wednesday evening, October 8. Speakers included Axtell J. Byles, president of the Tide Water Oil Co., New York City, "Education and the Industry;" Henry W. Boggess, Sinclair Oil & Gas Co., Tulsa, "Safety in the Mid-Continent Oil Fields;" C. A. Young, head of the standardization work for the American Petroleum Institute, "Progress of the Standardization Program of the American Petroleum Institute;" and H. L. Horning, of the Waukesha Motor Works, Waukesha, Wis.

At the meeting of the Kansas-Oklahoma division of the Mid-Continent Oil & Gas Association, held during the afternoon, the new executive committee was elected, consisting of the old executive committee with the addition of the Mid-Kansas Oil & Gas Co., which will select a representative to act soon. Vacancies in the committee will be filled by new representatives of the Indiahoma Refining Co., the Pulaski Oil Co. and the Noble Oil & Gas Co., and the companies were given authority to designate their members on the committee.

COMPANY REORGANIZED

A complete reorganization of the Anderson Foundry & Machine Co. has been perfected and the company will in the future operate under the new name of Anderson Engine & Foundry Co. The new corporation is financed and headed by a directorate composed of manufacturers and business men. A greatly improved model of the company's type "K" Anderson engine will be placed on the market in the same sizes as previously marketed, 30 to 325 h. p.

REPORTS 50,000-BBL. WELL AT BIBI EIBAT

A. P. Serebrowsky, president of the Russian Oil Trust and chief of the Russian delegation to the International Petroleum Exposition, announces receipt of the following cablegram from Baku:

"Well No. 50, Oil Field No. 3 in Bibi Eibat, came in at 2 p. m., October 4. Well gushing 50,000 bbls. per day pipe line oil. Depth of well 3,262 feet. Diameter of hole 8 inches."

NEW W. P. R. A. DIRECTORS

Two new directors were elected to the board of directors of the Western Petroleum Refiners Association at the meeting of the directors held Tuesday, October 7. C. C. Peppers of the Peppers Gasoline Co., Enid, Okla., was made one of the new directors and John L. Gray of the Shaffer Oil & Refining Co., Tulsa, also was made a director. The directorate now consists of 28 members. No decision was reached concerning the time or place for the fall meeting.

STORY OF WIRE ROPE IS TOLD IN BOOKLET

Leschen Lines
A brief description by words and pictures of where and how Wire Rope is made by A. Leschen & Sons Rope Co.
—St. Louis—

An attractive booklet, the cover of which is reproduced, is being distributed at Booth No. 9, Kentucky Building, on the Exposition grounds, by A. Leschen & Sons Rope Co., St. Louis, describing by words and illustrations where and how wire rope is made. The Leschen company dates back to the early days when wire rope was made in an open field and men did the work of machines. It has grown with the various wire rope using equipment and as new machines and methods were developed it developed the kind of rope to serve them. The oil industry and Leschen Rope, it is pointed out, had their beginning at about the same time.

NEW BOOKLET ON VALVES

A new 8-page booklet has just been printed by the Edward Valve & Manufacturing Co., of East Chicago, Ind., and is being distributed at the Exposition grounds. The various Edward valves for high pressures and temperatures in refinery service are shown in detail and the plug type seat and disc which is a feature of the Edward valves, is illustrated. A feature of the Edward service is the designing and construction of valves for specific performances. For refineries where sulphur appears in the crude, a special all-steel valve with tested resistance to the chemical action of sulphur is offered in the catalog.

IMPROVEMENTS IN INDUSTRY EQUIPMENT

(Continued from Page 64-H)

rotary has the latest make and break advantages. The entire equipment is manufactured from electric steel material. The draw works is the heaviest of its kind. The pumps, like the other equipment being of Oil Well make, are the largest of their kind. The twin cylinder steam engine is the latest in design. A 70-horsepower A. S. M. E. code boiler was used to furnish steam for the operation of the drilling machinery which made hole rapidly during the Exposition. The boiler operates under a working pressure of 175 pounds, is standard equipped with high pressure fittings and connections, and is provided with two safety valves, and two water intake lines. The boiler is provided with a skimmer blowoff. A low pressure Oil Well gas burner was used in firing the boiler. Leschen patented Hercules drilling line was used in drilling the hole at the Exposition. The Oil Well single cylinder drilling engine was also attracting wide attention, being equipped with many modern improvements. The three-point bearing for the shaft received considerable favorable comment, the outboard bearing being so installed that no delay or hindrance is experienced by the operator in removing or installing the belt. The Oil Well two-cycle gas engine created unusual interest among the superintendents, farm bosses and pumpers who observed it. It is an enclosed engine and is made from semi-steel material. The crosshead has been eliminated, giving flexibility, great speed range and power. The Oil Well belt driven mud hog pump attracted the attention of the visitors also. This pump is of the renewable and convertible type and can be quickly changed to be adaptable for pumping mud, oil or water, working against high pressures. The Oil Well Black Bear four-cycle gas engine furnished the power for driving the belt driven mud hog pump. The valve movement of this engine is mechanically controlled and gives a positive and accurate feed for the fuel requirements. A miniature 70-horsepower boiler made of copper and one-sixth actual size, completely fitted was placed at the Oil Well reception booth, together with a miniature rotary table. An elaborate display of cable drilling and fishing tools also was displayed at other Oil Well booths.

C. A. Mechling and Progressive Brass Co.

C. A. Mechling, famous for his wire line clamp which has practically become standard throughout the oil fields, has perfected another invention which he expects to be equally revolutionary. It is the Mechling high pressure quick opening ball seat valve, and can be opened in a quarter turn of the lever, whereas the average valve requires many turns. Measured in time, the valve can be opened in 3 seconds, it is claimed. An aluminum model of this is on display in the booth with the Progressive Brass Co., which also has an attractive display of brass products.

Key Boiler Equipment Co.

The Key Boiler Equipment Co. displays cans of Key Graphite Paste, and other articles and has cut-away sections of boiler equipment of various kinds.

Lemmon Filling Station Supply Co.

In the center of the Texas Building is the miniature filling station which forms the display of the Lemmon Filling Station Supply Co. The McSavaney Co.'s electric signs, and pump globes, and the Cincinnati Advertising Products Co.'s articles are handled by the Lemmon concern and all three companies are cooperating in the booth.

Foamite-Childs Corp.

A demonstration of how to extinguish a burning oil tank is given each day by the Foamite-Childs Corp., but not in its booth. Free motion pictures of an educational nature are also furnished each afternoon in the theater by this company. In its booth in the Texas Building, it shows its equipment such as the new metered type of Foamite fire engine, and a fire gun mounted with a glass tube for demonstration purposes. The red color of the apparatus makes the booth outstanding.

Truscon Steel Co.

The Truscon Steel Co., manufacturers of standard buildings, arranged as an attractive feature, a complete oil field camp, set in a frame.

D. & B. Pump Co.

The D & B Pump Co.'s booth is mostly filled with a portion of a rig which provides opportunity to illustrate the safety appliances manufactured by the company.

Taylor Instrument Co.

For intricate and delicately sensitive equipment, no booth is more elaborately supplied than that of the Taylor Instrument Co.'s of Rochester, N. Y., makers of the Tycos line. One of the most imposing sets of instruments in the booth is the Tycos system of automatic control for wax sweaters in oil refineries. An installation of Tycos temperature regulation on refinery bubble and dephlegmating towers is also highly interesting. There are numerous smaller instruments that look to the layman like miniatures but are full-size laboratory equipment such as viscosimeters and flash fire machines for lubricating oils, and the like.

American Oil Pump & Tank Co.

The American Oil Pump & Tank Co.'s exhibit has a distinctly patriotic note, the visible type lubricating oil tank in the middle of the display being surmounted with crossed flags, one of which is Old Glory and the other Tulsa's newly selected municipal colors. Two large gasoline pumps, also of the visible variety, complete the equipment.

Hills-McCanna Co.

The Hills-McCanna Co. displays on a table in the center of the booth, numerous kinds of metal, claiming to have a metal for every refinery need. The specialty of the company is the Hills-McCanna No. 45 Alloy which is said to be a bronze with a co-efficient of expansion 50 per cent greater than steel.

Northern Pump Co.

The Northern Pump Co.'s exhibit includes a rotor assembly of 300-gallon Northern pumps, and an "E Series" Northern rotary pump with a range of from 10 g. p. m. to 100 g. p. m. and for pressures up to 300 lbs. For the convenience of those who want to inspect the construction of the pumps there are cut-away models and numerous parts dismounted.

Merco Nordstrom Valve Co.

In the Merco Nordstrom Valve Co.'s booth are some instructive signs showing how money drips away as a result of leaky valves. The number of barrels of oil wasted in a day, week and year because of a small leak or drip is forcibly brought out by these signs. Merco valves are made for all kinds of uses including loading racks, tar lines, steam gas pipe lines, storage tanks and all other oil field uses.

Hoyt Metal Co.

Crawl-proof sheet lead is the main feature of the Hoyt Metal Co. and frequent exhibitions of lead burning are given in the booth to demonstrate the superior qualities of the Hoyt product. The lead burning equipment was furnished by the Tulsa Oxy-Hydro Co.

Westinghouse Electric & Mfg. Co.

Near the Peoria Street entrance of the Exposition grounds, on Lot L, there is being shown the Westinghouse twin motor cable tool drilling equipment in action. The principal oil fields are now nearly all served with electric power and electric drilling and pumping outfits are rapidly coming into general use by both large and small producers. The Westinghouse Electric & Manufacturing Co. have set up an extensive organization to study the industry's requirements, and to serve it with modern equipment, in keeping with the market trend toward improved methods and better economies. The twin motor method of drilling represents the very last word in electric power application in the oil field. Many large Mid-Continent producers have, after trial, standardized on its use. Among the practical advantages of drilling by this method are that it makes use of standard two speed, variable speed pumping motors as the power plant. The drilling motion can be made perfect for all depths of holes and all weights of tools through the headache post control. When the well is completed one motor and control is removed and the other is left for pumping, being already in position without any change. With this method there is no investment in special drilling equipment. The pumping motors used have a speed range of from 300 to 1170 r. p. m. giving a band wheel speed range from 25 to over 90, which permits every operation of drilling to be performed at the best speed. The motors are designed to take exceptionally heavy overloads, being capable for short periods of exerting over 300 horsepower much greater than possible with any other power or equipment.

Lufkin Foundry & Machine Co.

The only rotary made with friction disc makeup is being shown by the Lufkin Foundry & Machine Co. It is kept in operation constantly and drillers and field workers generally are studying it with interest. It is said to be a rotary that is several jumps ahead of the game. It is built like any plain rotary with independent outside ring table to make and break drill pipe or casing but has exclusive features among which are that it makes and breaks joints within itself and it is not necessary to reverse the engine to accomplish this.

Waukesha Motor Co.

Waukesha Motor Co. is showing the first 100 horse power 4-cylinder, 4-cycle gasoline, kerosene or natural gas burning engine with a self-starter and electric generator. The engine shown in the Ohio building is the first public exhibit of such an engine. The company is also showing a power unit equipped with reduction gear of 3.7 to 1, which reduces the speed of the reversible clutch to 250 revolutions per minute. The reduction gear is between the motor and the reversible clutch and with motor and reversible clutch mounted on the same sub-frame. The engine burns either gasoline, kerosene or natural gas.

Toledo Pipe Threading Machine Co.

Toledo Pipe Threading Machine Co. has two new propositions on the market and on exhibit this year for the first time. One is a perfect three-way tool for threading small pipe, sizes ⅜-inch, ½-inch and ¾-inch. The other is the "Toledo" No. 2½ which threads 4½-inch 5-inch and 6-inch.

Max B. Miller & Co., Inc.

Max B. Miller & Co., Inc., owner of the Sharples process of making lubricants, is exhibiting oils made by the process. The company has lately become the American distributors of "Antiscale," a Czecho-Slovakian invention in use in Europe for the past two years, but new in the United States. It is not chemical, nor mechanical, but is electrical and is a process for removing old scale and for prevention of the formation of new scale in boilers, condensors and water jacks.

Landis Machine Co.

Landis Machine Co. is showing a pipe threading and cutting machine which is receiving attention from machine shop operators. It has a geared head stock and all gears of steel running in an oil bath. All bushings are of bronze and there is forced lubrication to all bearings. It has eight speeds and cuts threads and pipe of sizes from 1 inch to 6⅝ inches. It has lever operation, universal front chuck and universal geared rear chuck with flange grip, and has the Landis die head and long-lived chaser. It is the only machine of the kind on exhibition.

Republic Supply Co.

Republic Supply Co. is showing the S. M. Jones Acme Gas Engine with especial attention being called to the simplicity of the governor. There is nothing about the governor to wear out with the exception of one little spring that can be easily replaced. It is a new idea in governors. The long life of the Acme engine is shown in a photograph of the Acme engine installed to pump the first well brought in at Corsicana on the Bird lease. The engine was installed in February, 1897, and is still in use, pumping the same well. Another feature of the exhibit is a Pyralin flexible tube to take the place of the glass tubes in gauges about gasoline storage tanks. The new tubes are flexible and unbreakable.

Hazard Manufacturing Co.

Hazard Manufacturing Co. is showing its full line of rope and the general superintendent of the company, Mr. Eli Weyhenmeyer of Wilkes Barre, Pa., is attending the Exposition and arranging to visit the Cromwell Field and other oil fields.

Wall Rope Works, Inc.

Wall Rope Works, Inc., which is carrying an exhibit of its rope, has recently manufactured the largest cable laid rope ever made as to combination of length and size. It is 1,500 feet long and 18 inches in circumference, being about 6 inches in diameter and weighs 16,000 pounds. The coil stood 8 feet in diameter and 10 feet high.

Bradford Rig & Reel Co.

Bradford Rig & Reel Co. has an interesting exhibit and is showing steel bull wheels and steel calf wheels. It is not only the first exhibit but is the first exhibition of the first wheel turned out by the company. The steel bull wheel is extra large and is claimed to be about 1,000 pounds heavier than any other.

Oklahoma Steel Castings Co.

The Oklahoma Steel Castings Co. is making a display of general commercial and oil country castings. The company is turning out the new Bovaird casing and tubing elevator and spider.

Titusville Iron Works

The Tico Gas Engine turned out by the Titusville Iron Works is started and stopped on an average of 250 times a day. Visitors start and stop it. The feature is that it demonstrates the claim of the makers that it is easy to start. Other claims for it are that it has power to pull and is built to last. It has been on the market only since January 1.

Fairbanks-Morse & Co.

Fairbanks-Morse & Co., which manufactures a big line of engines and pumps is showing three new propositions attracting great attention. Its 100-horse power type "Y" Diesel oil engine is being shown for the first time publicly. It is truly a triumph in engine building. A feature in connection with it is that the wind from the fly-wheel turns a fan which runs a ball-bearing electric motor showing that the motor is almost frictionless. Other features of the Fairbanks-Morse exhibit are a 25-horse power type "HB" engine with variable speed governor, an entirely new design, and a horizontally split case centrifugal pump.

Pattin Brothers Co.

Pattin Brothers Co., of Marietta, Ohio, is showing a 20-horse power engine and pumping unit. It is a new large size only recently put out by the company for operating pumping wells.

Spang, Chalfant & Co.

Spang, Chalfant & Co., Inc., is showing exhibits of its casing in connection with the Bovaird Co. exhibit.

Gaso Pump & Power Mfg. Co.

One of the biggest pumps on the ground is the Gaso Piston Power Pump shown by the Gaso Pump & Power Manufacturing Co., and used by the big pipeline companies.

Lehmann Machine Co.

Lehmann Machine Co. is exhibiting a big lathe designed especially to handle the lathe work that arises in connection with the oil industry.

William Powell Co.

Wm. Powell Co., making the White Star line of valves, is featuring a forged steel valve so much needed with the new cracking process in order to stand high temperatures. Its new forged steel valve will, it is stated, withstand temperatures of 1000 degrees. The same company is exhibiting a petrol throttle for use at filling stations that meets the requirements of the insurance underwriters. The packing gland, on which it has a patent, prevents all possible leakage of gasoline.

Robinson Packer Co.

Robinson Packer Co., is exhibiting a casing head latch on which it has patent pending and a spiral expansion plug on which it has just been granted a patent. Both are new to the oil trade and are being exhibited for the first time. The latch eliminates the setting of set-screws on the sand cap or oil saver.

Hinderliter Tool Co.

The Hinderliter eccentric combination socket which has been on the market only about six months is attracting the attention of drillers. The eccentric point digs lost tools out of the wall of a drilling well. The long tapered bowl guides the bit or lost tool into the slip seat causing the slips to expand and close over the collar. The same company is exhibiting a swivel top bailer which has not yet been put on the market but is expected to be out within 30 days.

Atlas Supply Co.

The Atlas Supply Co. is featuring its Union Duplex pump which permits of an interchange of valves by removing a cap and without the necessity of removing the head and deck also, as in some pumps. New features of the pump have been on the market about a year. It permits of changing the packing in the field without buying new heads and it can thus be made to pump nearly anything. Drop forging of the valve gears are also a feature of the pump.

Bovaird Supply Co.

Bovaird Supply Co. is making the first public demonstration of its grip and elevator and tubing and casing spider. The feature about it of interest is that it eliminates the necessity of lifting casing and tubing by the collar and the spider eliminates the old slips that so often fall into the hole and make a bad fishing job. One man can operate both the grip and the spider. The grip picks up the casing at any point and when released by the grip the spider catches it.

Goulds Manufacturing Co.

Goulds Manufacturing Co. is showing a pump with extra deep stuffing boxes to hold the light oils and gasoline. It has a horizontally split gland that adds vastly to the ease and convenience in getting at the packing, which is a new feature since last year's exhibition. Another feature of the pump is out-board pedestal bearings for the belt shaft with a flexible coupling on the belted unit to connect to the pump proper which takes all the belting strain off the main pump shaft.

Ohio Injector Co.

Ohio Injector Co., which is making an exhibit in connection with that of the Continental Supply Co. which distributes its goods, expects soon to introduce a new tight seat valve which is something entirely new in the line of valves. In its exhibit this year the company is showing the Chicago injector and standard brass gate valves and standard iron body gate valves.

Tnemec Paint & Oil Co.

Tnemec Paint & Oil Co.'s exhibit is made in connection with the Continental Supply Co.

Gray Tool Co.

Something entirely new in milling tools is being put out by the Gray Tool Co., which is showing it in its exhibit with the Continental Supply Co. The company started making the milling tool within the last month or two. The one on exhibition has milled out about 11 feet of casing and shows very little wear.

Jensen Brothers Manufacturing Co.

Jensen Brothers Manufacturing Co.'s straight lift improved pump jack which has been on the market a year, is one of the interesting exhibits. Stuffing box trouble is practically eliminated and the 48-inch stroke can be increased to 60 inches, answering the demand for a long stroke jack.

Kliptank

Kliptank is being shown at the exposition this year for the first time. A study of the exhibit convinces anyone it is possible to make a clip that will hold two pieces of steel together tightly enough to prevent oil or gasoline from escaping. A box constructed of tank steel and held together by the clips and pumped up with air on July 10, 1924, still shows a pressure of 50 pounds, the only air that has escaped being that from measuring the pressure. The "klip" is steel and pressed hot and is driven over the upturned edges of the sheet steel that constructs the tank with a hammer. A lifting device is furnished to pull the clamps or clips and a tank can be wrecked and removed with a 98 per cent salvage, the only expense being labor.

Cunningham Co.

The Cunningham Co. is featuring several new devices this year. Its Safety C Link and the Cunningham American Paraffin Bit, which scrapes the paraffin from either casing or tubing, attract a great deal of attention, as does also the Cunningham safety sucker rod hook. Cunningham is making the standard swivel swab in tubing sizes of 2-inch, 2-½-inch and 3-inch.

Williamsport Wire Rope Co.

Williamsport Wire Rope Co. has an especially constructed strand and closing machine for making wire rope and probably nothing in the exposition attracts more attention. In the factory the stranding and closing are done with separate machines but the process is exactly the same with the machine on exhibition. The company is handling the Petrol Belting which it is also exhibiting, a belting made especially for staying qualities so much needed in all branches of the oil industry.

Rex Chabelco Chain Co.

Rex Chabelco Chain Belt Co. of Milwaukee has put on a new high power chain for extra heavy duty going to 90,000 pounds tensile strength. The new chain has the same style of link as the old Nos. 1240 and 1030 but is made by using alloy automobile steel with a special heat treatment that gives an increase in strength of approximately 50 per cent and the new numbers are No. 1244 and No. 1034. Manufacture of the old numbers continues also. As souvenirs the company is giving away again this year a corn cob pipe, tobacco, match and a place to spit.

Novo Engine Co.

Novo Engine Co. is meeting the demand for big pumps for oil field use where water must be pumped long distances and meeting any other requirement of extra service. This is the first year the company has shown here for oil industry work its AFW-60 which is a 20-horse power duplex pump that discharges 60 gallons a minute. The company is finding a big demand for its products.

Ottawa Manufacturing Co.

The Ottawa Manufacturing Co. of Ottawa, Kans., had a display of its equipment for filling and bulk stations. The company also had on display its Stacold Home Refrigerator.

L. J. Mueller Furnace Co.

The L. J. Mueller Furnace Co. of Millaukee displayed a small and large type furnace. All the parts were shown and operation explained.

Visible Pump Co., Inc.

The Visible Pump Co., Inc. of Findlay, Ohio, exhibited a hand-operated 5-gallon visible pump together with a 10-gallon air operated unit. All the mechanical features of the pump were demonstrated. The company also had two "Yard-O-Lites" on display for illumination and decoration at all types of service stations.

Pittsburgh Reinforced Brazing & Machine Co.

The Pittsburgh Reinforced Brazing & Machine Co. of Pittsburgh, occupied two booth in a display of "Kerotest" cast steel valves. The Kerotest Drilling Valves have concealed seats to eliminate injury from tools. The refinery valves are designed to handle high pressures and temperatures.

Barco Manufacturing Co.

The Barco Manufacturing Co. of Chicago featured flexible joints. The Barco line is somewhat new to the oil industry but the joints have been used for years by railroads and other industries. They are being used in pipe line construction to take up expansion.

White Swivel Wrench Co.

The White Swivel Wrench Co. of Bradford, Pa., featured its patented swivel wrench which has a complete circle to assure the bit will not fall out.

Motorists want to see the color of the lubricating oils they are buying as well as gasoline, according to those in charge of the exhibit of the Handy Oiler Co. of Danville, Ind. The oilers are similar to milk bottles with metal spouts and breather pipe.

McCullough Manufacturing Co.

The McCullough Manufacturing Co. of Minneapolis, Minn., had on display Model "D" Sight Feed Oil Pump. The pump, it is claimed, eliminates guess work in lubrication by assuring a uniform feed through pressure at all times.

Joint Exhibit

The Whitney Steel Derrick Co. and Jones Oil Well Reamer Co., both of Tulsa, had a joint exhibit. The miniature Whitney derrick supported the miniature oil well reamer manufactured by the Jones Oil Well Reamer Co. In operation there are three or four joints of 2-inch tubing placed at the bottom of the string with 3-inch tubing or line pipe into which is screwed the reamer arm head. The top joint of string of tubing taken from the well is screwed into long collar on bottom of the ball bearing swivel which is then suspended in derrick or drilling machine on tubing line hook. When revolved the reamer swings against the sand. It increases production by removing paraffin and burnt surfaces from oil sand and reduces pulling and cleaning expense.

Reading Steel Casting Co.

The Reading Steel Casting Co. and the Pratt & Cady Co., two firms under the same management, feature their castings and show full-size models in cut-away sections, so that the working of the parts is clearly displayed. The Reading 400-lb. cast steel gate valve and the globe and angle valves of the same size are given special prominence in the booth as both are made to the new standard of dimensions of the A. S. M. E.

"Made in Tulsa" is the feature of the pumps made by the O. K. Machine & Manufacturing Co., four of which are on display in the company's booth. They are of the visible type and present an attractive appearance.

Ryan Motor Co.

A Ford tank truck, and a Fordson tractor comprise the main products exhibited by the Ryan Motor Co., but the attractive feature which stops most of the visitors and holds their attention for some time is a motion picture show, telling the story of Ford service in actual moving pictures. The Cine-Kodak machine projects the pictures into a black cone-shaped booth in the end of which is a tiny screen.

General Motors Corp.

A big, red G M C truck occupies practically all of the space in the booth of the General Motors Corp. A display of pictures forms a background for the truck and tells the story of the outstanding G M C achievements.

Clear Vision Pump Co.

Miniature pumps for gasoline, and lubricating oils and a miniature unloading pump enliven the exhibit of the Clear Vision Pump Co., of Wichita, Kans. The company also displays models of the U. S. Air Compressor, the Beacon Visible Pump and the Crown Lubricating Oil Pump and tank. Both automatic and hand pumps are contained in the exhibit, and both are said to have the approval of the Underwriters' Laboratories.

C. C. Fetty & Co.

The Fetty long stroke pumping attachments were shown at the booth of C. C. Fetty & Co. of El Dorado, Kans. The principal feature is the long stroke giving the slow motion in pumping.

Reading Iron Co.

The Reading Iron Co., of Reading, Pa., has samples of genuine wrought iron pipe at its booths. Those in charge explained the manufacturing processes.

Columbus Machine Co.

The Columbus Machine Co., of Columbus, Ohio, had a complete line of valves from ½ to 6 inches at its booth. These valves are forged steel solid wedge, especially designed for high temperatures and high pressures of particular value around refineries.

A. W. Wheaton Brass Works

The A. W. Wheaton Brass Works of Newark, N. J., featured faucets and valves for tank wagons and bulk stations.

Billings & Spencer Co.

Old King Tut of Con-necti-cut was the exhibit which attracted the special attention of many visitors to the booth of The Billings & Spencer Co. of Hartford, Conn. The exhibit consisted of a skeleton made of different forgings, some of which were over 50 years old. The head was composed of forgings taken from the old Spencer rifle. The feet were made of nut crackers and the arms and legs of connecting rods. The company also displayed a miniature drop hammer. The company also had on display many of the other products including chain tongs, wrenches, ratchets, pilers and machine sockets.

Burdick Enamel Sign Co.

The Burdick Enamel Sign Co. of Chicago, Ill., displayed a variety of signs used by many of the larger oil companies engaged in the marketing of refined products.

Muskogee Tool Co.

The Muskogee Tool Co. of Muskogee, Okla., had at its booth a few of the tools which it manufactures. One tool which attracted considerable attention was the Dunigan Double Knocking Head Jars.

Spengler Core Drilling Co.

The Spengler Core Drilling Co., Los Angeles, Cal., had as one of its features a showing of cores from California sands obtained at depths varying from 2,000 to 7,319 feet. The core taken at the latter depth was from a 5¾-inch hole.

Drilling equipment with which these cores were obtained were shown.

J. H. Williams & Co.

The J. H. Williams & Co., Buffalo, N. Y., exhibited the Williams "Vulcan" break out wrench, known in the oil fields as "Maud." The jaws of this wrench, it was said, cannot spread and the chain is proof-tested to two-thirds of its breaking strain.

McGraw-Baughman-Bearly Derrick Co.

The McGraw-Baughman-Bearly Derrick Co., of Tulsa, Okla., exhibit included its all steel crown block, swing level castings and sand reel boxes.

Kinney Manufacturing Co.

The Kinney Manufacturing Co., of Boston, Mss., featured its new Kinney R. P. pump, adapted to handle non-viscous and hot oils. The main bearings of the pump are roller bearings. They are placed outside of the pump proper so that they may be operated under ideal conditions. This was the first time that the pump has ever been shown.

Moran, Texas

The possibilities of Moran, Tex., for future oil development were shown by pictures, maps and official reports at the booth sponsored by the town of Moran.

O. K. Truck Manufacturing Co.

The O. K. Truck Manufacturing Co., of Okay, Okla., exhibited an oil field truck special. During the exposition the truck on display was sold to Frank Bell, oil field contractor, who had previously owned trucks manufactured by the company.

Crouse-Hinds Co.

The Crouse-Hinds Co. of Syracuse, N. Y., featured a display of lights used for interior and exterior lighting. The latter type lights were for rigs, tanks and yards. The exhibits also showed condulet fittings for vapor, dust, water and gas proof electrical installations.

Guy T. Berry Manufacturing Co.

The Guy T. Berry Manufacturing Co., of Tulsa had a Mason Measure Meter in operation. This concern also furnished meter equipment for the Chicken Farm well.

D. F. Connolly Agency

The D. F. Connolly Agency of Tulsa had an exhibit consisting of a carving set hammered out of 1½-inch yellow strand wire rope. This was first shown at the St. Louis Exposition in 1903. The company sells boilers and drilling lines of well known makes.

North American Car Co.

The North American Car Co. of Tulsa and Chicago, had photographs and diagrams showing the tank cars it leases and operates.

Edward Valve & Manufacturing Co.

The Edward Valve & Manufacturing Co., of East Chicago, Ind., had a display of Edward valves. These valves are especially designed for refinery use meeting all the varied requirements in both pressure and heat.

Boykin Machinery & Supply Co.

The Boykin Machinery & Supply Co., of Houston, Tex., had several of the "Greyhound" products on display. This exhibit included the C. & F. Rotary Expansion Bit, the Boykin Superior 4-inch Sheave Traveling Block and the C. & F. Rotary Tool joints.

White Co.

Next in the line of booths came the White Co. with two trucks about as widely different in dimensions as it is humanly possible to make them. One was a regular 5-ton White truck, complete except for the body, and the other was an exact duplicate of the big White, but miniature in size. It was complete in every detail with compartments, safety valves, fire protection devices, and four can racks and cost $275. On top of the big White was a moveable sign telling of the mileage performance and other records made by White fleets.

Cleveland Pneumatic Tool Co.

The Cleveland Pneumatic Tool Co. was featuring its Gruss Air Spring exclusively. Cut-away models of the air spring in various sizes for use on all types of cars from Fords to 7-ton trucks were on display, and one of these was in constant operation showing the inner working of the model. Numerous pictures mounted on a revolving stand told the story of the numerous truck companies which have adopted the Gruss Air Spring as standard equipment.

Davis Welding & Manufacturing Co.

The Davis Welding & Manufacturing Co. had two large tank truck bodies on display in its booth, in addition to fuel oil pumps and lubricating oil cans, which the company also manufactures. The brilliant red and green colors of the cans added to the exhibit.

American Car Foundry Co.

A positive self-locking outlet valve for tank cars was the feature of the exhibit of the American Car Foundry Co. which also included tank car parts, and dome covers. The outlet valve embodies many improvements over the common type and is especially designed to meet the requirements of the Bureau of Explosives. A model of the new improved valve and also one of the old type were on display, showing the advantages of the improvements. Another model exhibited but which has not been put on the market as yet, is the self-venting pressure locking dome cover, another safety advance which has met with the especial approval of the Bureau of Explosives.

Henry Vogt Machine Co.

"Vogt for Better Fittings" proclaimed a sign on the wall of the Henry Vogt Machine Co., and another read "Vogt for Better Boilers." The feature of the exhibit is made up of two pieces of steel which contrast strongly. One is a rough steel forging nearly 3 feet long, and the other is a finished Vogt drop-forged steel gate valve, entirely machined from the steel forging. The exhibit also includes a Vogt riveted auto truck tank and a complete line of drop-forged steel valves and fittings for high pressures and temperatures for refinery service.

Graham Brothers

A beautiful ton and half truck with enclosed cab, a 400-gallon, 3-compartment tank and a Dodge Brothers motor, comprises the exhibit of the Graham Brothers, builders of tank trucks. The truck is unusually attractive and beautiful nickeled cans adorn the four-can racks.

General Electric Co.

A 15-35 horsepower oil pumping motor which was first designed in 1913 and which has needed no electrical changes since that time features the exhibit of the General Electric Co. A new type of switch enables the motor to change from 15 to 35 horsepower, and specially designed mechanism also enables the motor to be reversed easily and without strain even at high speed. A 250-ampere gas driven arc welding set for a single operator and an electrically driven arc welder are also exhibited. A booth with dark blue plate glass window has been prepared for the convenience of visitors in watching arc welding.

Sivyer Steel Casting Co.

A large letter S in electric lights surmounts the booth of the Sivyer Steel Casting Co., makers of all kinds of oil field castings from different analyses of carbon and alloy steels. The exhibit of many kinds and varieties of gears, control levers, swivel wrenches, etc., is neatly arranged and presents an attractive appearance.

Ohio Steel Foundry Co.

The Ohio Steel Foundry Co.'s exhibit presents a complete line of "Hi-Steel" fittings and electrical steel castings arranged in a neat display.

Armstrong Machine Works

The Armstrong Machine Works' exhibit contains an unusually ingenious working model of the company's principal product. It is a glass model of the Armstrong Steam Trap, and shows clearly the effectiveness of the invention. The company manufactures in addition to its cast iron traps for lesser pressures, cast steel models for use on pressures of 500 to 1,000 pounds. These are on display at the booth.

Catron Manufacturing Co.

Several visible gasoline pumps and visible lubricating oil pumps feature the booth of the Catron Manufacturing Co., Inc., manufacturers of pumps of these kinds.

Joint Exhibit

Across the doorway is the attractive booth of Allen, Sproull & Allen, the United States Gauge Co., and the Erie Tool Works. A large display board forming the background of the booth contains a clock more than a foot in diameter and all kinds and sizes of gauges ranging from the same dimensions as the clock on down to smaller instruments. Wrenches, clamps and vices as well as other tools adorn the counter.

Midwest Piping & Supply Co.

The entrance to the next booth is cleverly designed in the shape of a horseshoe, made out of 5-inch pipe. Hanging from the center is another clever design fashioned out of nickeled pipe and containing the initials of the firm, the Midwest Piping & Supply Co. of St. Louis. These two features adequately represent the products of the company and speak well for their workmanship.

Crane Co.

In the center of the floor on the north side is the latest up-to-now thing in radio. It is specified as the new Crane circuit and is entirely the output of the Crane Co., manufacturers of all kinds of steel, iron and bronze castings, pipe and fittings. Everything about the model radio set from "antenna" and "loud speaker" to "dials" and "tubes" is a Crane product. Lifting the top of the cabinet reveals Crane fittings of various kinds instead of tubes, couplers, coils and so forth. The booth is surrounded by columns made of Crane castings in graduated sizes, and the most pretentious feature is an assembly of pipe and fittings stretching entirely across the booth and down both sides, with a separator in the middle.

Mack International Truck Co.

The Mack International Truck Co.'s exhibit is not confined to the booth in the New York Building. In the booth is a 2½-ton Mack oil field special truck, mounted with a Mack winch. There is also a cut-away section of the duo-reduction differential, and another cut-away section of the rubber shock insulated spring, which is an exclusive Mack feature.

M. B. Skinner Co.

Several types of pipe and collar clamps were exhibited in the booth of M. B. Skinner Co. of Chicago. Emergency clamps for repairing leaks in pipe lines, collar leak clamps, pipe joint clamps, pipe saddles and other kindred articles were displayed. The most noticeable feature was the chart entitled "What Oil Leaks Cost," which showed that a leak of two drops per second would make a loss of 2⅔ gallons per day, or two barrels in a month.

Pyle National Co.

The Pyle National Co. displayed the new 23-inch flood light which is used in refinery work. This light gives a 1,500,000 candle power beam in flood light work. Other lights also were displayed as well as the improved Pyle National turbo-generators for oil field work, the 1,500-watt size for the average drilling rig and the 500-watt size for the smaller core drilling operations.

A. Leschen & Sons Rope Co.

Two interesting machines for testing wire and wire rope were shown in the booth of A. Leschen & Sons Rope Co. One was a torsion machine designed to show the twisting strength of the wire, while the other was a machine for testing the tensile strength of wire. Various kinds of oil field wire ropes were displayed in addition to a new design for rotary work which has a wire core.

Barnsdall Refining Co.

The booth of the Barnsdall Refining Co. consisted of a rest room fitted up like a sun porch with a view of the refinery through a window at the rear. The awning, porch swing and general effect was unique.

Conewango Refining Co.

H. M. and L. M. pure Pennsylvania stocks were featured by the Conewango Refining Co., Warren, Pa., a concern that has been making these lubricants for 24 years. Paintings on the sides of the booth showed the two plants of the company.

Marland Refining Co.

The Marland Refining Co. presented a wonderful scenic display. From the rocks in the foreground a waterfall of refined oil gushed forth. The lighting effects were excellent. An attractive display of the various grades of refined oils also was shown in sample bottles and glass containers as well as cans and barrels. Packages of wax were displayed also. A rest room invited the weary visitors.

Sun Oil Co.

The Sun Oil Co. featured a stream of emulsifying oil for cutting and threading purposes. A rack of machined steel parts was displayed as products of the cutting oil showed by this concern. Gears were shown in operation, running in Sunoco gear compound. Numerous additional samples, including greases and motor oils were displayed.

The Texas Co.

The Texas Co. booth had an enormous Texaco painting on the rear wall with a continuous stream of golden oil coming from a suspended can featured as the central attraction. The large canopy over the booth, the rest room and writing tables, in addition to the oil samples and an illuminated electric beetle served to draw the attention and favorable comment of the visitors.

Cosden & Co.

A very complete display of refined oils was shown by Cosden & Co. These samples were shown in bottles and glass containers and were grouped on stands that were illuminated from within, the lights shining through the oils in an attractive manner. The exhibit contained practically all kinds of motor oils and many grades of other lubricants.

Sinclair Refining Co.

The oil business in miniature was shown by the Sinclair Refining Co. in its exhibit which included a small pumping well, a pipe line pumping station, a refinery showing stills, condensers, tail house, agitators, tank cars and service station. The course of the oil from the ground to the consumer was traced and numerous oils were attractively displayed.

Texhoma Oil & Refining Co.

The Texhoma Oil & Refining Co. of Wichita Falls, had an attractive booth with samples of gasoline, oil, oil sand, grease, lubricants and other refinery products displayed for the benefit of the visitors.

Prairie Oil & Gas Co.

A large and comfortable rest room was the offering of the Prairie Oil & Gas Co. This spot was favored by the many friends and acquaintances of this company who desired to stop for a smoke and chat before going through the remainder of the exhibits.

Empire Companies

The Empire Companies had a complete exhibit with a background painted to show the scope of the Empire service. An automobile motor was cut away and operated with glass partitions enabling the visitors to see the method of lubrication. Samples of wax, lubricants and greases completed the display. An illuminated map of the natural gas lines of the Empire Companies in Oklahoma and Kansas was particularly attractive. The securities division of Henry L. Doherty & Co. had several interesting charts.

Producers & Refiners

The Producers & Refiners Corp. had a small refinery for the benefit of the visitors with the booth contained in the tail house. Samples of oil and photographs were displayed attractively on the interior while the exterior had miniature models of drilling wells, refinery apparatus, etc. on it.

National Refining Co.

The National Refining Co. showed a large, typical tank truck for the distribution of gasoline from bulk to service stations.

Quaker City Tank Line, Inc.

The Quaker City Tank Line, Inc., St. Louis, Mo., furnished the 8,000-gallon insulated tank car, which was standing on the tracks in the center of the grounds.

Prairie Oil & Gas Co.

A compression physical testing outfit for determining the gasoline content in natural or casinghead gas was supplied by the Prairie Oil & Gas Co. The car was stationed near the center of the grounds and caused considerable comment. Other apparatus used in testing gas, such

as the gravity bottle and the orifice flow meter were shown with the compression outfit. The outfit was very complete, having a small vacuum pump and high and low stage compressors, mounted on a serviceable truck.

Foamite

A large Foamite pumper-equipped fire engine, mounted on a truck was another attractive piece of automotive equipment displayed in the center of the Exposition grounds. It was used to demonstrate the ability of Foamite products several times in extinguishing test oil fires.

Chapman Valve Manufacturing Co.

A well drilling device fitting over the top of the casing head was displayed by the Chapman Valve Manufacturing Co.

Russian Oil Exhibit

The Russian Oil exhibit consisted of pictures, maps and charts through which the visitor was able to obtain a satisfactory conception of the present day Russian oil industry. Those in charge explained the illustration and also gave out considerable literature published since the industry was nationalized. The descriptions were mainly concerned with developments in the Baku and Grosny districts.

Moon Manufacturing Co.

Ten new features were claimed for the Moon steam turbo-generators, designed particularly for oil field use. The latest model shown by the Moon Manufacturing Co. was very compact. It was the design generally favored in the oil fields, developing 1,500 watts.

Baldwin Chain & Manufacturing Co.

Several kinds of heavy duty oil well chains, one of which had been in service continuously night and day for more than eight months, were shown by the Baldwin Chain & Manufacturing Co. of Worcester, Mass. They were shown to be particularly adapted to rotary drilling.

De La Vergne Machine Co.

Photographs of heavy vertical Diesel type De La Vergne engines were displayed in the booth of the De La Vergne Machine Co.

Prescott Co.

Sturdiness, simplicity and extreme accessibility characterize the pump displayed by the Prescott Co., Menominee, Mich. The pump displayed was capable of handling 4,000 to 6,000 bbls. of oil daily against a pressure of 900 pounds. It was outside packed type, with new design bronze valves. A geared connection transmits the power from a shaft.

Dunn Manufacturing Co.

The new Dunn-Smithtong for rotary work was featured by the Dunn Manufacturing Co. of Oxnard, in addition to several other new tools. The Dunn-Smithtong takes drill pipe, collar and tool joint all with one set of bushings. Claims set out for it include speed and safety and the fact that it will not crush the pipe upon which it is operated.

Frost Vertical Turbo-Generator

The Frost vertical turbo-generator for oil field use was one of the interesting new types of oil field equipment. Testimonials show that the oil cups on one of these turbo-generators were filled and sealed and the generator was used 26 days furnishing light through nineteen 75-watt lights. The generator was then torn open and was found to contain considerable oil. It is extremely compact and economical in steam requirements.

Oil Country Specialties Mfg. Co.

The Burke long stroke pumper in operation on a miniature pumping well was shown in the booth of the Oil Country Specialties Manufacturing Co., Coffeyville, Kans., along with several other oil field appliances. The long stroke pumper permits longer stroke and a reduced number of strokes thus being distinctly beneficial for deep well pumping. A pair of sprockets are placed on the end of the walking beam and chains pass over the sprockets, being anchored at one end and connecting to the polish rod at the other. When the beam is put into motion the device doubles the normal length of stroke.

Wilson & Willard Manufacturing Co.

A circulating head for standard or percussion drilling was one of the new and interesting articles displayed by the Wilson & Willard Manufacturing Co. of Los Angeles. The device has been successfully used for 14 years and was the first circulating head introduced that provided for a removable plate. With it the tools can be removed or returned to the well and circulation controlled without disconnecting a single pipe.

Eastern Torpedo Co.

A torpedo wagon which has been in continuous use for 12 years was exhibited by the Eastern Torpedo Co., together with the nitroglycerin containers, squibs, wiring, cans, etc., which make up the average shooter's equipment.

A. O. Smith Corp.

Smithsteel couplings for casing, line pipe and drill pipe were exhibited by the A. O. Smith Corp. of Milwaukee, Wis.

Oil Well Improvements Co.

The well known roller oil saver and the casing control head were displayed by the Oil Well Improvements Co. of Tulsa.

Walter O'Bannon

The O'Bannon-Stewart safety tubing hook was one of the most recent developments shown by Walter O'Bannon. A guard on this device prevents the hook from catching the side of the derrick and keeps the elevators from coming off. The Viking line of rotary pumps were shown also.

Smith Separator Co.

A glass front in a new Smith separator showed the action of this device in taking the crude oil as it comes from the wells. The cleaned oil was run to a tank and the gas was led off and utilized. Several additional sizes of Smith separators were displayed on a nearby lot by the Smith Separator Co.

Fisher Governor Co.

A new liquid level control, weighted so that it will regulate the amount of water in a tank containing water and gasoline was shown by the Fisher Governor Co. The float was weighted so that it would sink in the gasoline, allowing the tank to fill with this liquid, but when the water level creeps up, the float rises, giving a positive action on the fluid control.

Reed Roller Bit Co.

An enormous roller bit was displayed by the Reed Roller Bit Co. in this concern's booth. The bit measures about 5 feet high and is about 2 feet wide and weighs several hundred pounds.

National Tube Co.

A joint of corkscrew twisted National seamless upset drill pipe was displayed by the National Tube Co. A placard explained that the bit fell into a crevice during drilling and that the rotary motion continued bending the pipe without breaking it. A joint of National pipe compressed to a 5-foot length by a 170-quart shot of nitroglycerin was also shown.

Armstrong Cork & Insulation Co.

A toy electric train at the booth of the Armstrong Cork & Insulation Co. attracted the attention of young and old alike. The train was used to draw attention of the visitors to the insulating materials used for gasoline tank cars and other tankage equipment.

"Nye the Die Man"

"Nye the Die Man" was not present in his booth after Sunday, having returned home to supervise the construction of a $160,000 factory, and to write another of his famous letters to the industry, one of which drew a reply from President Coolidge. A complete line of pipe threading tools was exhibited with special emphasis placed upon the new Toledo type die stock with adapter for use of a solid die. This machine cuts threads from ⅛-inch to 2-inch. The cutter wheel with thin blade was also featured.

Wilson Welder & Metals Co.

Many visitors to the Exposition were probably shocked at the first exhibit they saw after passing through the north door of the New York building, just south of the Madison Street entrance. Perhaps more small boys than ladies were "shocked" by this exhibit, however, as it consisted of a miniature tank farm, showing three toy welders constructing a tank roof for an 80, a bottom for a 55 and a pipe line. The toy men held in their hands miniature welding apparatus from which live sparks leaped to the metal of the tanks and pipe, and all of the metal in the exhibit was connected so that a "shock" resulted from touching any part of it. The tank farm was complete with dikes, around the tanks and with a miniature tractor. The exhibit was designed to demonstrate the Wilson Welder & Metals Co.'s method of welding a complete tank. Wilson "Color-Tipt" welding wire, and two models of welding machines completed the exhibit.

Mine Safety Appliance Co.

The Mine Safety Appliance Co. is showing a line of rescuicitating devices used in the mining industry, with attendants to explain their application to the oil and gas business.

Southwestern Engineering Co., Inc.

The feature of the display of the Southwestern Engineering Co., Inc., is a gasoline condenser (type 540) with a capacity of 27 bbls. of gasoline an hour, used in absorption gasoline plants and refineries, and a type H-500 heat exchanger.

William S. Barnickel & Co.

Tret-O-Lite and its uses are shown in the display of William S. Barnickel & Co. of St. Louis, Mo. Specimens of untreated and treated oils from many fields are shown and tanks in which Tret-O-Lite is shipped were on display.

Geiser & Bogue Manufacturing Co.

The Geiser & Bogue Manufacturing Co. of Neodesha, Kans., in its display is specializing on its patent ring-plunger working barrel for which the demonstrators claim economy in first cost and upkeep along with high efficiency.

Chaplin-Fulton Manufacturing Co.

The Chaplin-Fulton Manufacturing Co. of Pittsburgh, Pa., displays the Fulton Duplex Sensitive gas governor or regulator for natural gas; Fulton back or check pressure regulator; Automatic Regulator for the oil supply in absorber tanks and the Fulton Duplex sensitive vacuum regulator.

Wico Electric Co.

The Wico Magneto is demonstrated by a corps of efficient company representatives in the booth of the Wico Electric Co. of Springfield, Mass.

Climax Engineering Co.

The Climax Engineering Co. of Clinton, Iowa, shows three types of gasoline engines for heavy duty, as in industrial locomotives, ditchers, cranes, tractors, etc., and a rotary refrigerating unit.

Baker Casing Shoe Co.

Coming from California into the Mid-Continent to show what they do on the coast the Baker Casing Shoe Co. of Huntington Park, Los Angeles, is showing a line of Baker specialties, but with its casing shoe as a feature of the line.

A. P. Green Fire Brick Co.

Fire brick and the A. P. Green Plastic Quik Patch for repairing worn out fire brick, are displayed in the booth of the A. P. Green Fire Brick Co. of Mexico, Mo. Dry-milled fire clay and Sairset cement are also displayed.

West American Rubber Co.

The West American Rubber Co., of Los Angeles, Calif., is after business in every field where rotaries are used, and is shown rotary hose tested to 1,500 pounds pressure. It is also telling of the good qualities of Whalite, a water valve insert and the company's special lubricated swab and packing.

Hoffman Manufacturing Co.

The Hoffman Manufacturing Co. of Bristow, Okla., demonstrates the Rex walking beam yoke. Hoffman special boiler regulator and Hoffman release swab, which, it is claimed, cannot be overloaded.

Manzel Brothers Co.

Manzel Brothers Co., Buffalo, N. Y., is demonstrating with a working model its force feed lubricator for lubricating the cylinders of drilling engines, pumps, compressors, etc. "It is always there with the oil the moment the engine starts drilling and there is a size and style to fit any type of oil country engine," the demonstrators say.

Templeton Kenley & Co., Ltd.

The Templeton Kenley & Co., Ltd., of Chicago is showing Simplex geared jacks of many sizes and from 1 to 40-ton capacity. Its special feature in its X-310 Simplex emergency jack for oil country service, which may be used at any angle, as it pivots on its own base. The tool is especially useful in lifting boilers, engines or any heavy object where requires other than a straight lift.

Standard Tank Car Co.

The Standard Tank Car Co. has a room in the Louisiana building with the walls of its booth decorated with photographs of its product.

C. F. Braun & Co.

C. F. Braun & Co. or Alhambra, Calif., which equips gasoline absorption plants, is showing in its booths the Braun heat exchanger, by-pass valve, cooling towers and auxiliaries and condensers, also the Braun expansion joint with by-pass valve and the Braun strainer. A model cooling tower is an interesting part of the exhibit.

Bristol Co.

The Bristol Co. of Waterbury, Conn., is exhibiting its new high resistance pyrometer, automatic temperature control, vacuum pressure gauges, recording thermometers, all of which are used in either the refining or commercial natural gas industry.

Metric Metal Works

The Metric Metal Works, Westcott & Greis and the G. M. Davis Regulator Co. have adjoining booths in which they are showing the first named company's orifice and domestic meters and cast box meters. The Davis regulator display, comprising gas regulators and steam controls, and the Westcott & Greis line of liquid safety conservation valves and liquid gauge hatches. Meriam manometers are also displayed. Westcott & Greis handle all of the above named goods.

Industrial Construction Co.

The Industrial Construction Co., which builds steel buildings and which erected all the new Exposition buildings and arcades, has a rest room in the Texas building.

Tulsa Oxygen Co.

The Tulsa Oxygen Co. of Tulsa displays cutting and welding apparatus, oxygen, acetylene and hydrogen, and acetyline generators.

Trimont Manufacturing Co.

The well known Trimo line of wrenches and pipe cutters is being demonstrated in the Trimont Manufacturing Co.'s booth.

W. K. M. Co.

The W. K. M. Co. of Houston, Tex., makes a special display of its pipe cleaning machine which, it is said, with three men do the work of 150 to 200 men using old fashioned methods. Pipe line and gas company officials at the Exposition have been much interested in the claims set forth by the company. The display includes tubing slips and oversize stemming valves.

Fullerton Stewart Lumber Co.

The Fullerton Stewart Lumber Co. of Tonkawa has a miniature rig on display and the attendants are ready to show the company is looking for more business on rig materials and all kinds of oil country building lumber.

Butler Manufacturing Co.

The Butler Manufacturing Co. of Kansas City, Mo., exhibits trucks and storage tanks for gasoline dealers, vacuum control regulators, vapor proof bolted tanks for storing crude oil, and Butler steel buildings.

Edwin Burhorn Co.

Water cooling towers for gasoline plants and general industrial uses are shown in the display of the Edwin Burhorn Co. of New York. A model is the booth is in actual operation. The company makes towers with a capacity of from 1 gallon to 6,000 gallons of water per minute.

Chapman Valve Manufacturing Co.

The Chapman Valve Manufacturing Co. of Indian Orchard, Mass., has an exhibit of chrome nickel steel for valves and is showing a dozen types of valves with the Chapman motor operated valve with Chapman control as a particular feature of the display.

Goodyear Tire & Rubber Co.

The Goodyear Tire & Rubber Co. through its Tulsa, Okla., branch, displays

Goodyearite asbestos packing, sheet packing, belting and hose, together with belting fabrics and hose fabrics.

Champion Pneumatic Machine Co.

Champion air compressors for use in filling stations and garages are demonstrated at the booth of the Champion Pneumatic Machine Co., of Chicago, together with a filling station gasoline pump.

Bridgeport Machine Co.

The Bridgeport Machine Co. of Wichita has a particularly attractive display showing the Swan underreamers. A live swan has a little pond all to itself and swims gracefully about while the representatives of the company teli of the qualities of the underreamer. The company is also showing the Bridgeport patented hollow reamer, socket, casing spear and tubing spear; the Prosser swivel socket, a line of universal grabs, sand pumps, wire line lubricators, pumping hangers, polish rod clamps, jar rein sockets, Swan swings, Sensation rubber belt, Wall bull rope and manila cable.

Joseph T. Ryerson & Son, Inc.

The good points of Lewis iron and Glyco metal, the latter a babbitt well known in the trade, are demonstrated at the booth of the Joseph T. Ryerson & Son, Inc., Chicago. The company has also provided a comfortable rest room.

Braden Co.

The Braden Co. of Tulsa, which manufactures structural steel buildings, including steel engine houses and belt houses, shows specimens of these various products.

Dearborn Chemical Co.

The Dearborn Chemical Co., Chicago, Ill., is displaying No-Ox-Id, a rust preventive used on underground pipe, for the bottoms of steel tanks and the interior of tanks, and for pipes and coils subjected to contact with running water. The company gives a practical illustration of the merits of the product with a series of pipes subjected to running water from the Arkansas River. All the metal parts in the United States Army's airplanes which recently finished the around the world trip were covered with No-Ox-Id, the company's representatives say.

Brown Welding & Machine Co.

Devil's steel hands and Devil's pitchforks in many sizes are shown in the fishing tool display of the Brown Welding & Machine Co. of Breckenridge, Tex., together with specimens of heavy steel parts of drilling tools which were lost in the hole until rescued by the use of the company's seemingly irresistible grabs.

Oklahoma Natural Gas Co.

The Oklahoma Natural Gas Co. has an attractive display which includes a Ruud storage heater, Pittsburgh instantaneous water heater, Bryant boiler, Pennsylvania gas furnace and Minneapolis heat regulator, all in operation, and the American meter prover used by the company to test meters for accuracy. The latter is of interest to all consumers of natural gas as the average gas user has no idea how a commercial gas company can tell whether a meter is right or wrong. Here they can see the test actually applied.

Leader Iron Works

Models of truck tanks and all steel drain racks are shown by the Leader Iron Works of Decatur, Ill. The company makes complete installations of bulk gasoline plants and special refinery equipment all of which is set forth in photographs and in talks to those interested by the company's representatives.

Quigley Furnace Specialty Co.

The Quigley Furnace Specialty Co. of New York is featuring Hytempite, a high tempered cement, and showing how old burnt out fire brick may be reclaimed by its use by grinding the brick and mixing it with the cement and using the product for patching and coating furnace interiors.

Oklahoma Iron Works

The Oklahoma Iron Works of Tulsa has a 42-inch casing block on display, together with a forged bradenhead made by the company; forged steel casing rings, running from 20-inch down to 3-inch sizes; the company's line of bits and jars; the Fox trip casing spear; O. K. all forged temper screw, and a specimen of the casing shoe manufactured by the Oklahoma Iron Works. Patrick H. Fry, inventor, is telling of the good qualities possessed by the Fry ball-bearing spider, for use on a derrick floor when casing is frozen and for many other purposes.

Southwestern Specialty Co.

The Southwestern Specialty Co. of Tulsa displays a model of the Swartwout Metal Building with ventilators. The company makes industrial buildings up to 30 feet in width and of any length.

Dean E. Foster & Co.

The Foster baffle for absorption plants is shown in several varieties by the Dean E. Foster & Co. of Tulsa. Photographs of the Foster products are displayed and their application in oil country use is explained by engineers in attendance.

Charles H. Hough Manufacturing Co.

The well known line of Hough specialties, including Bronzex and Steelex balls and seats, working barrel valves and various types of plungers and inserted pumps and the special new steel extension lower valve with oversize ball and seats, are shown by the Charles H. Hough Manufacturing Co. of Franklin, Pa.

Armstrong Brothers Tool Co.

Armstrong Brothers Tool Co. of Chicago is showing for the first time the Armstrong Stillson wrench, and also demonstrating the merits of its complete line of lathe tools, pipe vises and chain vises, chain wrenches, stocks and dies, drop forged wrenches and machine shop specialties.

Graver Corporation

The Graver Corp. cannot display its line of steel tanks and refinery equipment in its booth but has provided a rest room for visitors in the Texas building. It shows a part of its line in photographs.

Washington Iron Works

The Washington Iron Works of Sherman, Tex., which specializes in repairing old machinery, shows samples of its work in a gas engine crank shaft and oil engine cylinders ground oversize. It is showing oversize pistons for oil engines, piston rings and cylinder lining castings. The company has been operating 48 years.

Magneto Ignition Co.

At the west end of the center section of the Texas Building, a magneto mystery engrosses the attention of many visitors. It is mounted on a stand in front of the Magneto Ignition Co.'s booth and is in operation, but the source of the power is apparently a mystery. Figure it out for yourself. One of the most attractive objects in the booth is the beautiful radio set which is to be given away as the company's prize in the registration lottery. Another Splitdorf magneto in the center of the display adds to the beauty of the exhibit with a constant stream of thick blue sparks.

Mosler Metal Products Corp.

A large 3-foot spark plug in the booth of the Mosler Metal Products Corp. is never handled to any extent by visitors. There is no need of any sign such as "Hands Off." The reason is that a number of fat, juicy sparks play around on the business end of the plug. Other spark plugs of all sizes between that one and a regular stock article are in action and even one cut-away section spits forth a mean spark. The trade name of the plug is the Mosler "Spit Fire."

Associated Supply Co.

From far-off California has come the Associated Supply Co., a subsidiary of the Associated Oil Co., and they are here to introduce an ingenious petroleum meter which has been developed by the parent company and which has heretofore been marketed only on the Pacific Coast. The meter is useful wherever gasoline or oil needs to be measured. Two cut-away sections in the booth show how the meter works and a miniature back end of a tank truck shows the details of that particular type of installation.

A. Y. McDonald Manufacturing Co.

A red light flashing behind the initials "McD" in the center of a diamond-shaped figure represented the trade mark of the A. Y. McDonald Manufacturing Co. and formed a most attractive and appropriate background for the company's booth. The firm manufactures fittings for the refinery and jobbing trade, and features the Universal Gastite tank car dome cover, one of which is being given away in a guessing contest conducted at the booth, and to which the employes of all refining and natural gasoline manufacturing companies are eligible.

Chicago Pneumatic Tool Co.

A Little Giant electric coal drill and a Giant gas engine are the outstanding exhibits of the Chicago Pneumatic Tool Co. The concern also features gasoline and oil engines, gas and air compressors, both portable and stationary, vacuum pumps, pneumatic hammers, etc. All of these articles are on display.

Joint Exhibit

An attraction that stops many visitors is the demonstration of welding and cutting that goes on continually in the booth occupied jointly by the Oxweld Acetylene Co., the Linde Air Products Co., Union Carbide Sales Co. and the Prest-O-Lite Co. A screen of colored glass protects the eyes of the audience while an expert welder shows how a weld is made. Small jobs of welding are done free of charge in this booth.

Norris Brothers Inc.

Two knives sticking in a grapefruit on a stand in the booth of the Norris Brothers, Inc., of Robinson, Ill., demonstrate the non-corrosive properties of the steel used in the balls and seats and other pumping equipment manufactured by this company under the trade name of No-Co-Ro. One of the knives is made of ordinary steel and the other of non-corrosive metal. The former is badly corroded already while the latter is as bright and shiny as when it was first stuck in the fruit at the beginning of the Exposition.

Columbian Steel Tank Co.

From 2 quarts to 600 gallons is the variation in size of the truck tanks on display in the booth of the Columbian Steel Tank Co., whose motto is "Tanks for the World." A 1,600-gallon truck tank made by this company can also be seen on the grounds of the exposition, outside the building, and is known as the Columbian 3-point supported partition-mounted truck tank. The miniature is an exact model of the larger tank. Other unique features of the exhibit are the "Cow and Calf" tank, which is cut away so the calf can be seen, and also cut-away portions of two bolted pressure flow tanks.

Berry Brothers

The Berry Brothers believe that artistic colors are not out of place on oil tanks and show this effectively by means of a miniature "55" storage tank which is painted in orange and has lettered on it, "Linoil Tank Enamel," the company's principal product. The effect is decidedly pleasing. Wooden panels coated with the various shades of paint manufactured by the company form the background for the exhibit.

B. F. Goodrich Rubber Co.

Specimens of rubber in all stages from the crude product as it is gathered on the plantations in the Amazon Valley to the finished rubber oil field goods manufactured by the company, are on display in the B. F. Goodrich Rubber Co.'s booth, occupied also by the Haynes-Patrick Auto Supply Co. A black velvet background with a golden vine trailing across it set off the display, and numerous pictures tell the story of the making of rubber.

Johns-Manville, Inc.

Like a snow scene is the booth of Johns-Manville, Inc., makers of asbestos products. The beams supporting the building are covered with flaked asbestos to demonstrates how parts of buildings exposed to fire or heat may be protected, and a cut-away portion of a tank in the booth is covered with sheets of the same material. In a show case, all kinds of asbestos products from the crude material to asbestos yarn, rope, cloth, packing, gaskets, etc., are displayed.

Oil Conservation Engineering Co.

"Oceco" fittings mounted on a tank show the visitor the advancements that have been made by the Oil Conservation Engineering Co. in the field of tank protection and prevention of losses. On the floor of the booth are several other fittings, some of them cut away to show the inside construction of the articles and one is enclosed partly in glass. The Stough Tank Erecting Co. is the local distributor for the "Oceco" products.

Lee C. Moore & Co., Inc.

The top section of a Lee C. Moore & Co., Inc., reinforced steel derrick, painted black, is the outstanding feature of that company's exhibit, although a life-sized steel bull wheel claims part of the attention. On each side of the derrick section is a miniature rig and outfit in action, one being a pumping rig and the other a drilling derrick. Both assemblies are complete and the tools rise and fall with realistic action.

S. M. Jones Co.

The S. M. Jones Co. has arranged its products consisting of sucker rods on a neat board. There is also a picture of the company's factory, which is said to be the largest factory devoted exclusively to the manufacture of sucker rods.

J. H. McEvoy & Co.

The J. H. McEvoy & Co. and the Rhodes Master Packing Co. are demonstrating in their booth principally the McEvoy Wireless Well Strainer. It is a neat model of good workmanship and design.

Hill Hubbell & Co.

Hill, Hubbell & Co. have as their drawing card an aluminum paint which will cover any surface thoroughly with one coat. As proof of this, they have a small riveted miniature storage tank which was first painted completely black and half of which was then treated to one coat of their "Bitulumin" paint.

Kelly Mapping Co.

The Kelly Mapping Co. makes a showing of its compact wall map, which, while it covers only 9½ feet square of wall space, shows all of the Oklahoma Field.

Bradford Motor Works

The Bradford Motor Works, of Bradford, Pa., through its representatives, is showing the many good qualities of the Tex working barrel, which the company claims embodies numerous unusual features.

Superior Tube Co.

Superior steel derricks and rig irons are demonstrated by the Superior Tube Co., which also is showing a line of specimens of its tubing, casing and line pipe and Harrisburg seamless steel couplings.

Webster Engineering Co.

Radiant gas burners for use in power plants, refineries and under other oil region stationary boilers is the feature of the Webster Engineering Co. exhibit, which is also showing the Hammel oil burning system and fuel oil burning sets.

Maloney Tank Manufacturing Co.

A model of a knock-down patented copper steel tank is exhibited by the Maloney Tank Manufacturing Co., as a feature of its display.

Link Belt Co.

A line of rotary chains, roller chains and silent chain drives is displayed by the Link Belt Co., of Indianapolis, Ind. The company does a large business in chains used on rotary outfits in the oil country.

Gustin-Bacon Manufacturing Co.

Wyoming shovels and spades are the feature of the display of Gustin Bacon Manufacturing Co., of Tulsa, which also exhibits a line of rubber goods including belting and packing.

Alfred Wirth & Co.

The exhibit of Alfred Wirth & Co., of Erkelenz, near Dusseldorf, Germany, attracted the attention of practically every visitor to the Texas Building. Three distinct types of drilling rigs were displayed. The Wirth California combination rig was housed in a steel derrick and was similar to the American standard cable drilling rig with the exception of a few changes made by the foreign manufacturer. The Wirth water flush combination drilling rig, combining many of the better features of the cable and rotary methods was designed for foreign service. Drill rods used for lowering the bit instead of cable. A beam in the top of the derrick connecting to a beam on the floor communicates the drilling activity to the bit. The third rig was known as the Wirth-Fauck universal

percussion. As many as 150 blows per minute may be struck with this outfit by using the drill rods instead of the drilling cable.

Mid-Continent Map Co.

The Mid-Continent Map Co., of Tulsa, presents its new form of abstract map and its unusual line of other oil country maps. Numerous large companies use the maps of the Mid-Continent Map Co., because of their special features.

American Seamless Tube Corp.

At the booth of the American Seamless Tube Corp., of New York, the seamless steel casing and drill pipe sold by this company were on display. It is stated to have an ultimate strength of 80,000 to 95,000 pounds per square inch and is manufactured in the Saar Basin of France and is inspected in the United States by the R. W. Hunt & Co.

Insulating Products Co.

The Insulating Products Co. of Chicago, displayed Webers No. 48 Insulating Cement, subjected to high temperatures. It is claimed the cement will stick to a hot surface without a support. It can be used on stills, tanks or any other large surface that is to be covered all around.

Monroe Calculating Co.

The Monroe Calculating Co. had on display several of its latest calculators

Chamber of Commerce

The Chamber of Commerce of Tulsa maintained two booths with photos and literature describing points of interest in and around Tulsa.

The Baash Ross Tool Co.

The Baash Ross Tool Co. of Los Angeles, Cal. had on exhibit a Reed Drilling Indicator, known as the "Drill-O-Meter." The company also had other exhibits of its oil well tools and specialties, including the well known Baash-Ross Safety Joints.

M. C. Hale Hardware Co.

The M. C. Hale Hardware Co. of Tulsa, Okla. displayed a line of hardware of particular interest to those engaged in the drilling and production of crude oil. One of the main features of the exhibit were two Fuller-Johnson gas engines used for small pumping outfits.

Hope Engineering & Supply Co.

The Hope Engineering & Supply Co. of Mount Vernon, Ohio, did not exhibit any of its equipment at its booths in the West Virginia building. Those in charge of the booths entertained the friends of the company and explained features of the exhibit on display elsewhere in the exposition grounds.

Spang Weldless Jars

The Spang Weldless Jars in all sizes from 3½ inches to 8 inches attracted the attention of visitors at the booth of Spang & Co., Butler, Pa. These jars are made of one piece special alloy steel and heat treated. Those in charge explained the manufacturing process used in making the jars.

Robinson Tool Co.

The Robinson Tool Co. of Tulsa has on exhibit the B. & R. Sucker Rod Hanger and also the Robinson Snuffers. This equipment was only recently perfected. The operations of both the hanger and snuffer were demonstrated at the booth. At the same booth the W. J. Colegrave Pumping Jack was shown. This jack is designed to operate with large saving in power.

Sullivan Machinery Co.

The Sullivan Machinery Co. of Chicago, Ill. has a varied assortment of cars demonstrating the important features in connection with the use of Diamond Core Drills in several fields. The equipment of the company was not on display at its booths in the West Virginia building but the cores and literature stressed the desirability of eliminating a large part of the guessing in structure finding. One of the pamphlets distributed contained an article on "Structure Finding and Diamond Drills" by Kay Peters of Garber, Okla.

Andrews Steel Co.

The booth of the Andrews Steel Co. of Newport, Ky., featured the Asco steel products. This concern manufactures steel for all kinds of drilling tools. Those in charge of the exhibit explained the manufacturing processes by which the Asco products were obtained. At the same booth the Newport Rolling Mill Co. of Newport, Ky. had on display three open hearth iron culverts. These culverts were exhibited as typical of the Globe brand products manufactured by the company.

Shaffer Specialty Co.

The Shaffer Specialty Co. of Tulsa, Okla., featured the Shaffer "Almetal" Sand Reel Supports, one of which was shown at the booth. In addition the company was showing the Angus Safety Clamp, the Leidecker Safety Swab and the Jeffey Sockets.

Moser Manufacturing Co.

Perhaps the most interesting exhibit of the Moser Manufacturing Co. of Kane, Pa., was the new Moser Measuring Machine for measuring the depth of oil and gas wells. The equipment was placed on the market after extended experimentation. The machine weighs 62 pounds. The frame is made of Aluminum Pattern Alloy. The special features of the equipment have to do with the reduction to a minimum of all friction. It can be used either on the sand line or cable. The exhibit also included a complete line of all the Moser patents used in the drilling and operation of oil and gas wells.

A. W. Fawcett

A. W. Fawcett of Yale Okla., had a miniature derrick with well on pump to display his Self-Aligning Stuffing Box. The principal feature of this stuffing box is the elimination of side strains by the self-adjusting ball and neck. At the same booth Lovell D. Dodd of Pawhuska, Okla., had on display his patented Telescope Drilling Nipple. This is made in all sizes and lengths. The feature claimed for this equipment is that it can be used several times. In operation the nipple is adjusted to the casing at the desired length and screwed into casing.

Wheatley Brothers

The Wheatly Brothers of Kansas City, Mo. had at their booths one of their power pumps. The unit consists of a power pump mounted on a trailer which can be moved either by horses or tractors. The engine is 50 horse power and is especially designed for the oil fields. In operation the pump forces oil into the pipe lines at any point in the line. It will pump water as well as oil. The trailer is constructed so it can be utilized regardless of conditions in the fields.

Universal Pump Co.

The Zublin Multi-Stage Pumps for oil wells are manufactured by the Universal Pump Co., the Parkersburg Company being distributers for the Mid-Continent and eastern fields. The pump consists of an assembling of steel plungers arranged in stages within the working barrel. In operation it divides the total liquid pressure into as many equal parts as there are stages used. It is claimed that the invention increases the flow of oil because it handles the gas and sand and reduces the loss through leakage.

American Nokol Co.

The American Nokol Co. of Chicago, Ill. exhibited a complete automatic oil heating unit consisting of the furnace and the equipment used in supplying feeding and controlling the oil.

Oilift Co.

The Oilift Co. of Bristow, Okla., exhibited a "Spitz" Traveling Valve and the "Fitz" Flow Packer. The valve is made for the standard working barrel and is especially useful in sandy wells. The flow packer flows all the oil the tubing will carry, taking the oil beneath the working barrel and the gas above.

Osage Tool & Manufacturing Co.

The Osage Tool & Manufacturing Co. of Denoya, Okla., had something new in a swab. This swab, known as the Osage Liner Trip Swab, is used with any lower end swab to swab the liner and deliver fluid to flow tank without the loss of fluid in liner or around tools where the well does not have enough gas to lift fluid off swab.

Parkersburg Rig & Reel Co.

In the West Virginia building, the exhibit of the Parkersburg Rig & Reel Co. featured the Parkersburg Portable Bailing Machines and the Zublin Multi-Stage Pumps for oil wells. The company had additional equipment in operation at other points in the exposition grounds. The portable bailing machine is made both in 20-inch and 26-inch sizes, the latter used only for deep work. These machines have a bailing speed of 650 feet per minute. The spooling drum is 10 inches in diameter, 20 inches long, with steel flanges 36 inches in diameter. The friction clutch and spooling drum are directly mounted on a 4-inch shaft, 5 feet, 6 inches long.

Larkin Packer Co.

The Larkin Packer Co. of Tulsa had a complete line of packers and casing shoes. The Bell Pump Co. of Tulsa demonstrated the Bell pump for pumping sandy wells.

RESEARCHES IN GEOLOGY OF FINDING PETROLEUM

(Continued from Page 64-A)

ence and judgment of the geologist. As to the reasons for the occurrence of oil in synclines and other unlikely places we are widely at variance, nor do we now know where in synclines and unlikely places to look for oil. At bottom, searching for oil is much the using of an anticlinal rule of thumb.

Economically important as they are, the determined facts and principles special to oil geology are, in the main, relatively superficial, circumstantial and, withal, meager. Beneath them the lines of thought are more vague and speculative, and the views of geologists differ more and more as they are followed back to the basic principles in the foundation of oil geology. This is chiefly due to the fact that petroleum geology is a new science. Even so fundamental and primary a question as that of the origin of oil itself has not yet been conclusively proved. All of the many theories have their followings because none of them has yet been conclusively shown to be the one according to which our oil deposits were formed. Geologists are, therefore, divided into groups holding conflicting opinions, with the probability that one group only is right. The erroneous theories held by the others must certainly result in erroneous conclusions and occasional wrong advice to the operators, with consequent losses, waste of drilling and unnecessary cost of production.

More Science, Less "Hunch"

The question of origin must be answered in order to know why oil is absent in any formation, region or part of a dome and why it happens to be present in places where it is not now expected; also, whether it migrates downward across the beds, how far it has traveled in any direction, and whether more oil was left behind. These are but a few of the things we must know—samples, so to speak—and we must gain this knowledge before we can, with least hesitation, greatest precision, and fewest mistakes, guide, as we should, to the location of the oil. The removal of misapprehension must precede good judgment.

The operator needs more fundamental science and less "hunch," and greater exactness as well as certainty in the location of new pools. He must have better knowledge behind the geological judgment as to the productive areas or oil-bearing proportions of the structure. We must have a sound basis of principle and fact for the conclusions that one area, formation, or fold will not have oil, and that another now regarded as hopeless will give reasonably good results.

The present remarkable situation as to these fundamental problems in oil geology is in large part due to the lack of definitive laboratory experiments, conducted in scientific coordination with the geological facts observed in the field. We need a Carnegie Geophysical Laboratory applied to the organic rocks. However, to test the dominant theories regarding the origin of oil could probably be carried to a determinative conclusion in less than three years, at a cost of a few thousand (probably less than $8,000) a year. Other researches are needed relative to the primary oils and gases, the changes, mutual relations of oils and gases in contact with rocks and waters of different composition, texture and temperatures, and under different pressures. Such investigations may, for example, teach us to determine from gas showings whether oil is present or has been present, and the kind of oil.

Should Be Started Now

The researches should be started now if you would have cheaper and surer finding when productive territory will have been drilled exhaustively, when "barely possible" but new territory is looked at with longing eyes, and when the leases drilled are playing out and company assets are shriveling under the producer's eye. One may, however, ask—if increased efficiency and economy in finding oil are good things then, why not now? Petroleum geologists, as individuals, are growing in skill through study, observation and experience, which is handed on, but our knowledge of the fundamental principles of oil geology is nearly at a standstill for lack of carefully planned, organized, and systematic researches.

This need is so profoundly realized by the petroleum geologists of the country that committees have been appointed by the American Association of Petroleum Geologists and the National Research Council to bring the subject before operators and public and to stimulate and assist the investigations in every possible way. After long consideration and discussion these committees have outlined a group of researches which in joint session they have unanimously recommended as most urgently necessary. The different projects have been carefully worked out as to scope, plan of procedure, results, auspices of conduct of the investigation, and costs. We shall be glad to place them in hands of the oil men.

The value to the public, as well as to the oil industry, of some of these lines of research has long been recognized by some of the scientific bureaus of the Government, such of the United States Geological Survey and the Bureau of Mines, within the scope—I may say, within the ideals—of which such investigations find place. Largely, however, the capacity to accomplish such researches by the Geological Survey has been blindly curtailed in the campaigns for war efficiency and the reduction of governmental expenditure.

Cost Can Be Regained

The committee urges these researches on your attention. The cost of all of them—even the maintenance of an organization or institute expresely to conduct such researches—for a year, would be less than the cost of drilling four average wells. Let us suppose that at the end of the year the conclusions already accruing from the investigations were to effect a saving of 5 per cent in the number of dry holes drilled by established companies of good standing, with long records of successful operation. Mr. Oliver tells me that the total number of dry holes drilled by all companies in 1922 approximates 6,018, the cost being $117,000,000. At $100,000 for the first year, and successively smaller amounts for the next three years, the aggregate expenditures for the proposed researches would be equivalent to a tax of .0008½ per cent on this dead loss to the companies. 5 per cent of $117,000,000 is $5,850. The proposed studies should lead to reductions far greater than 5 per cent in the number of dry holes. This is worth thinking over.

Financing the investigations and experiments cannot and should not be left to the geologists. We cannot, on the other hand, appeal with such boldness and persistency, to disinterested institutions engaged in research purely for the increase of knowledge, or for the public welfare, as to those who will receive most direct and greatest benefit therefrom. Hence the petroleum geologists bring to you the underwriting of this work for the greater avoidance of waste by useless drilling; the more certain and definite localization of the undeveloped reserves in the ground, and the increase in the amount of the oil that may profitably be recovered from the fields already discovered. Confidentally, as between men mutually interested, you as operators to receive financial returns, we as the gainers of geologic knowledge, we lay our proposal before you as business investments.

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REFINING AND MARKETING

Gasoline Production In California More In August Than July

LOS ANGELES, Cal., Oct. 6.—Although the production of gasoline in August was larger than the output during July, it was far below the average for the current year to date. The total output during August was 108,092,466 gallons, an average of 3,486,854 gallons, compared with 3,299,346 gallons daily during July. The daily average for August, 1923, was 3,521,481 gallons and for the same month in 1922, only 2,187,668 gallons. The total output for the first eight months of the current year of 923,317,671 gallons is only 359,882,494 gallons less than the entire output last year and 229,819,923 gallons in excess of the total production during the year 1922. The average daily production for 1924 to date is 3,784,089 gallons, while the average for the entire year of 1923 was 3,515,617 gallons and for 1922 only 1,899,994 gallons.

Consumption and shipments during August of 123,040,109 gallons was the largest of the year and second only to the State record of 127,846,676 gallons established in July, 1923. The daily average for the month of 3,969,036 gallons is comparable to 3,822,489 gallons daily during July, 2,972,467 gallons during August of last year and 2,114,927 gallons in August, 1922.

Stocks were reduced 14,947,643 gallons during the month, a total reduction of 31,165,094 gallons during the past two months. The present storage of 252,011,428 gallons is, however, 60,231,053 gallons larger than held at the first of the current year and 98,406,324 gallons in excess of the storage on hand August 31 of last year.

Kerosene production totaled 22,435,015 gallons, an average of 723,710 gallons daily, as compared with 529,025 gallons for the same month last year and 465,988 gallons in August, 1922. During the current year to date, 179,900,604 gallons have been produced, equivalent to an average of 737,298 gallons daily. The consumption during August was 690,553 gallons daily, as compared with 730,397 gallons daily for the current year to date. Stocks increased 1,027,878 gallons, the present storage of 31,911,021 gallons, representing an increase since January 1, 1924, of 1,683,618 gallons.

There were 35 refineries in operation with an aggregate daily capacity of 545,970 bbls. of crude. They were working at 75 per cent of their rated capacity, running to stills an average of 404,374 barrels of crude. In addition to the crude, 959,341 bbls. of unfinished oils were re-run and 182,327 bbls. of casinghead run or blended. According to the report issued by the Bureau of Mines, there were 7,304,680 bbls. of crude and 1,577,237 bbls. of unfinished oils on hand at refineries at the close of the month waiting to be run.

OIL RATE HEARINGS SET FOR OCTOBER 22

The hearing on the oil rate cases involving the entire Mid-Continent area which was scheduled to be held at Fort Worth, Tex., October 15, has been postponed to October 22 by the Interstate Commerce Commission. Frederick I. Cox, Interstate Commerce Commissioner, will conduct the hearings.

The hearing is the result of a complaint filed by an organization of North Texas refineries in which they alleged discrimination in freight rates in favor of certain other groups of refiners. The case involves the entire Mid-Continent rate structure and all groups will be represented at the hearing. It is expected that it will take two to four weeks to take all the testimony.

CALIFORNIA REFINERY STATISTICS FOR AUGUST, 1924

Production of Gasoline by Months
(Unit of Gallons)

Month—	1924 Total Gallons	1924 Daily Average	1923 Total Gallons	1923 Daily Average	1922 Total Gallons	1922 Daily Average
January	115,330,234	3,720,330	92,686,090	2,989,874	44,790,331	1,444,849
February	112,082,190	3,864,903	92,852,538	3,316,162	43,806,932	1,564,533
March	126,043,182	4,346,317	104,402,122	3,367,810	49,141,956	1,585,224
April	120,364,468	4,012,149	102,428,548	3,414,285	50,991,900	1,699,730
May	122,345,924	3,946,643	112,314,674	3,623,054	52,468,152	1,692,521
June	116,779,487	3,892,649	116,316,719	3,843,891	54,961,369	1,832,046
July	102,279,720	3,299,346	121,212,438	3,910,079	59,063,530	1,905,275
August	108,092,466	3,486,854	109,165,919	3,521,481	67,817,696	2,187,668
September	.....	.....	103,618,605	3,453,954	70,139,443	2,337,981
October	.....	.....	119,134,600	3,843,052	65,373,412	2,124,949
November	.....	.....	106,196,727	3,539,858	64,586,228	2,152,874
December	.....	.....	103,872,185	3,350,716	69,856,800	2,253,445
Total	923,317,671	3,784,089	1,283,200,165	3,515,617	693,497,748	1,899,994

Shipments and Consumption of Gasoline by Months
(Unit of Gallons)

Month—	1924 Total Gallons	1924 Daily Average	1923 Total Gallons	1923 Daily Average	1922 Total Gallons	1922 Daily Average
January	99,626,326	3,213,752	75,618,930	2,439,320	36,645,242	1,182,104
February	89,575,187	3,088,800	88,606,548	3,164,484	36,363,803	1,298,707
March	104,083,791	3,357,542	86,152,824	2,779,123	50,669,498	1,634,500
April	109,838,576	3,661,286	103,802,851	3,460,095	48,869,154	1,628,972
May	112,778,310	3,638,010	101,873,191	3,286,232	61,916,087	1,997,261
June	105,647,148	3,521,571	119,582,787	3,986,093	62,914,339	2,097,145
July	118,497,171	3,822,489	127,486,676	4,112,472	65,584,330	2,115,624
August	123,040,109	3,969,036	92,146,469	2,972,467	65,562,730	2,114,927
September	.....	.....	113,124,583	3,770,819	60,680,962	2,022,698
October	.....	.....	104,792,275	3,380,396	50,320,008	1,623,226
November	.....	.....	90,185,159	2,006,172	50,510,426	1,683,681
December	.....	.....	86,543,829	2,791,736	53,753,805	1,733,994
Total	863,086,618	3,541,339	1,190,786,190	3,262,428	643,789,374	1,763,806

Stocks by Gasoline by Months
(Unit of Gallons)

Month—	1924 Total Stocks	1924 Monthly Surplus	1923 Total Stocks	1923 Monthly Surplus	1922 Total Stocks	1922 Monthly Surplus
January 1	191,780,375	.....	99,366,400	.....	49,658,026	.....
January 31	207,484,283	15,703,908	116,433,560	17,067,160	57,803,115	8,145,089
February 28	229,991,286	22,507,003	120,680,550	4,246,990	65,246,244	7,443,129
March 31	251,960,677	21,969,391	138,058,780	17,378,230	63,718,701	*1,527,543
April 30	262,476,569	10,525,892	136,684,477	*1,374,303	65,841,447	2,122,746
May 31	272,044,183	9,567,614	147,138,960	10,441,483	56,394,512	*9,446,935
June 30	283,176,522	11,132,339	142,859,862	*4,266,108	48,486,542	*7,952,970
July 31	266,959,071	*16,217,451	136,585,654	*6,274,208	41,920,742	*6,520,800
August 31	252,011,428	*14,947,643	153,605,104	17,019,450	44,175,708	2,254,966
September 30	.....	.....	144,099,126	*9,505,978	53,634,199	9,458,491
October 31	.....	.....	158,441,451	14,342,325	69,187,603	15,553,404
November 30	.....	.....	174,452,019	16,010,568	83,263,405	14,075,802
December 31	.....	.....	191,780,375	17,328,356	99,366,400	16,102,995
Total	.....	60,231,053	.....	92,413,975	.....	49,708,374

*Decrease.

Production of Kerosene by Months
(Unit of Gallons)

Month—	1924 Total Gallons	1924 Daily Average	1923 Total Gallons	1923 Daily Average	1922 Total Gallons	1922 Daily Average
January	24,877,077	802,486	15,759,990	508,387	17,211,218	555,201
February	23,387,949	835,284	17,712,987	632,607	17,478,297	624,225
March	20,917,092	674,745	18,405,327	593,720	15,750,676	508,086
April	23,930,144	797,671	18,359,965	611,999	14,722,826	490,761
May	24,026,326	775,043	20,519,907	661,932	18,931,766	610,702
June	20,108,017	670,267	17,998,275	599,943	17,713,315	590,444
July	20,218,984	652,225	16,285,670	525,344	15,313,484	493,983
August	22,435,015	723,710	16,399,772	529,025	14,445,615	465,988
September	.....	.....	17,296,559	576,552	16,431,183	547,706
October	.....	.....	15,468,701	498,990	14,932,890	481,706
November	.....	.....	17,941,590	598,053	18,012,792	600,426
December	.....	.....	23,991,576	773,922	14,347,967	462,838
Total	179,900,604	737,298	216,140,319	592,165	195,292,029	535,047

Consumption and Shipments of Kerosene by Months
(Unit of Gallons)

Month—	1924 Total Gallons	1924 Daily Average	1923 Total Gallons	1923 Daily Average	1922 Total Gallons	1922 Daily Average
January	26,767,633	863,472	25,008,328	806,720	15,191,418	490,046
February	19,372,047	691,859	15,898,802	567,814	16,777,098	599,182
March	12,289,068	396,422	20,527,683	662,183	20,869,690	673,216
April	30,458,089	1,015,270	13,378,980	445,966	14,464,545	482,152
May	20,051,493	646,822	20,623,245	665,266	16,525,034	533,066
June	26,114,711	870,490	20,018,536	667,285	11,286,092	376,203
July	21,756,508	701,833	9,766,029	315,098	18,776,818	605,704
August	21,407,137	690,553	20,560,453	663,240	13,679,116	409,004
September	.....	.....	12,868,541	428,951	13,193,406	439,780
October	.....	.....	18,305,447	590,498	19,934,240	643,040
November	.....	.....	18,830,622	627,687	19,561,983	652,066
December	.....	.....	17,742,217	572,330	9,483,703	305,926
Total	178,216,986	730,397	213,530,883	585,016	189,743,143	519,844

Stocks of Kerosene by Months
(Unit of Gallons)

Month—	1924 Total Stocks	1924 Monthly Surplus	1923 Total Stocks	1923 Monthly Surplus	1922 Total Stocks	1922 Monthly Surplus
January 1	30,227,403	.....	27,617,967	.....	22,069,081	.....
January 31	28,336,847	*1,890,556	18,369,629	*9,248,338	24,088,881	2,019,800
February 28	32,352,749	4,015,902	20,183,814	1,814,185	24,790,080	701,199
March 31	40,980,773	8,628,024	18,061,458	*2,122,356	19,671,066	*5,119,014
April 30	34,452,828	*6,527,945	23,042,443	4,980,985	19,929,347	258,281
May 31	38,427,661	3,974,833	32,935,505	*103,938	22,336,079	2,406,732
June 30	32,420,967	*6,006,694	20,913,844	*2,020,261	28,763,302	6,427,223
July 31	30,883,143	*1,537,824	27,436,485	6,517,641	25,299,968	*3,463,334
August 31	31,911,021	1,027,878	23,275,804	*4,160,681	26,066,467	766,499
September 30	.....	.....	27,703,822	4,428,018	29,304,244	3,237,777
October 31	.....	.....	24,867,076	*2,836,746	24,302,894	*5,001,350
November 30	.....	.....	23,978,044	*889,032	22,753,703	*1,549,191
December 31	.....	.....	30,227,403	6,249,359	27,617,967	4,864,264
Total	.....	1,683,618	.....	2,609,436	.....	5,548,886

*Decrease.

ACME PETROLEUM CO. ENLARGES

CHICAGO, Oct. 4.—The Acme Petroleum Co., Carl Beroth, president, expanded its plan of carrying in storage a full line of petroleum products by enlarging its plant at Riverdale, just south of the City of Pullman, on the bank of the Calumet River. Several 10,000 and 5,000-bbl. tanks are being added to the already large storage capacity.

GREENWOOD PIPE LINE

KANSAS CITY, Mo., Oct. 4.—The Manhattan Pipe Line Co. of this city has filed a request with the Kansas Public Utilities Commission for permission to issue $700,000 in bonds for the laying of a pipe line from the Greenwood County Field to this city. The line will connect with local refineries.

GULF COMPANY LEADS TEXAS GASOLINE SALE

Less than one-sixth of the gasoline sold in Texas during the month of August was sold by the smaller companies, the reports on the collection of gasoline taxes for the State shows. Combined sales of all small companies for the month amounted to less than 5,000,000 gallons out of a total of over 30,000,000.

Of the larger companies the Gulf Refining Co. led by a wide margin. It paid taxes on the sale of 10,127,500 gallons of gasoline. This was over 3,000,000 gallons more than the total for the Magnolia, formerly the dominant distributor of the State, The Magnolia is second, leading The Texas Co. by 63,000 gallons—totals of 7,056,300 and 6,994,000 being reported for those companies.

The Pierce Oil Corp. with 3,195,500 was fourth, followed by the Humble with 1,696,600. The Cities Service Co., a comparatively newcomer to this field, and operating as yet in only part of the State, showed an increase of its distribution to 1,484,800 gallons for the month.

ABSORPTION PLANT FOR FORT COLLINS

CASPER, Wyo., Oct. 4—The American Gasoline & Refining Co. of California has completed arrangements for the building of a plant at Fort Collins, Colo. to handle the gas output of the wells in the Wellington and Fort Collins Fields. This plant is to absorb the gasoline from the gas and the initial plant will be built to handle 30,000,000 feet daily with an output of about 25,000 gallons of gasoline. The gas from these fields is expected to yield about 1 gallon per 1,000 feet from experimental tests made with samples. This is considered lean gas for gasoline extraction, but the refiners consider the wells showed oil after the gas had flowed for a time and that the gasoline content would likely become greater in time.

CHANGES ANNOUNCED BY ALTITUDE PET. CO.

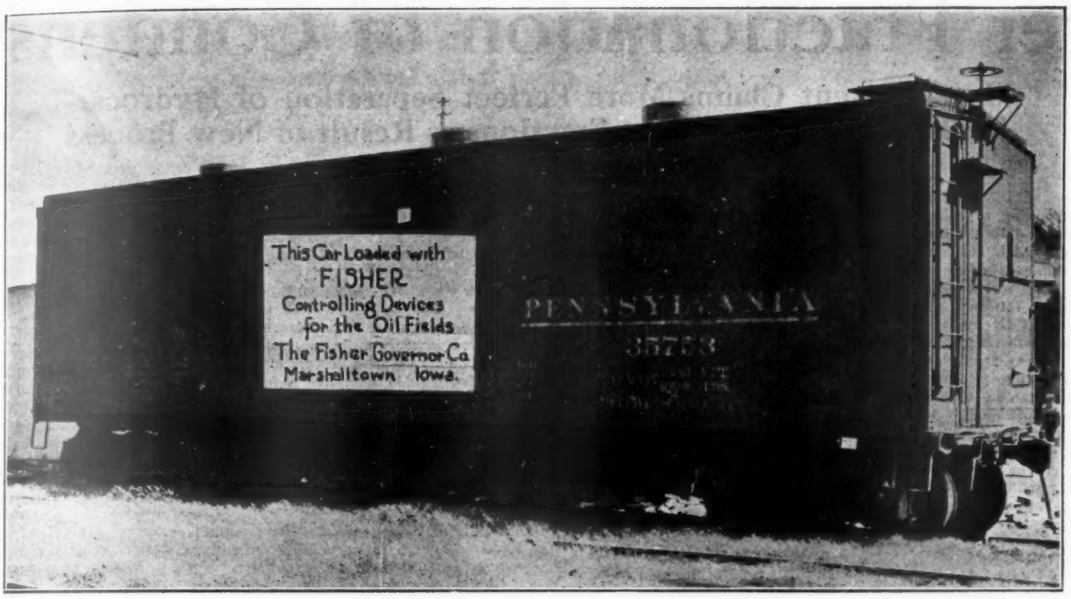
The Altitude Petroleum Co. of Tulsa during the past week announced several changes in its sales organizations and the operations of the refinery of the Nyanza Refining Co. located at Wilson, Okla. Arthur Anson, president of the company, is moving his headquarters from Chicago to Tulsa. C. H. Warner, Jr., formerly connected with the main departments of the Indiahoma Refining Co. and the Western Petroleum Corp., will have charge of the Chicago office.

The company is completing a pipe line from the refinery to the Hewitt and Graham Fields where it has contracted for 1,000 bbls. additional crude daily. Company officials state that the crude runs to stills of the plant will shortly be increased to 2,500 bbls. daily.

KNOX CO. MARKETING BOUGHT BY CHAMPLIN

OKLAHOMA CITY, Okla., Oct. 6—The Champlin Refining Co. of Enid has purchased the warehouses, filling stations and other equipment included in the entire marketing department of the Charles E. Knox Oil Co. of Enid. The consideration is said to have been about $100,000. Fourteen filling stations, 6 curb stations and 2 warehouses are among the items included. The warehouses are at Enid and Covington and filling stations at Enid, Covington, Marshall, Douglas, Crescent, Riverview and Tonkawa.

Charles E. Knox, president and general manager of the Knox Co., announced that hereafter the company will devote itself exclusively to the production of oil in the Mid-Continent Field.



This carload of Fisher Specialties shipped to the Smith Separator Co.

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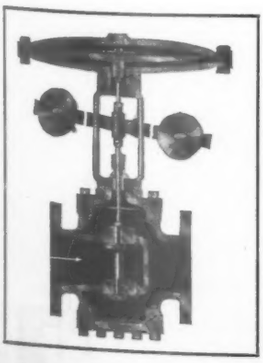

The Fisher Governor Company

Marshalltown, Iowa

OTHER FISHER SPECIALTIES SHOWN INCLUDE—
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Vacuum Valves
Safety Valves
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Vacuum Controllers
Liquid Level Controllers
Steam Traps
Grease Traps
Strainers

Better Fractionation of Condensates

Owen Patent Claims More Perfect Separation of Hydrocarbons With More Distinct Fractions as Result of New Process

More efficient fractionation of condensates has been one of the problems which has held the attention of refiners for several years. Many different kinds of fractionating towers have been perfected and installed. Unique and effective methods are now in use which obtain satisfactory results. Improvements, however, are being sought by many refiners who are still dissatisfied with their present arrangements. They realize that ideal fractionation of the vapors from the stills is something that can be obtained only after a prolonged effort on the part of many men who have worked on the problem. There are both good and bad features about many of the towers and fractionating systems now in use. Additional improvements, both in perfection of operation and economy are still being sought.

Patent No. 1,505,798, granted to Ernest Owen, of New York City, on August 19, 1924, contains many interesting features relative to the subject of towers and the proper fractionation of vapors from petroleum distillation, under the title, "Apparatus for Condensing and Fractionating Hydrocarbons." In his description, Mr. Owen declares that the apparatus "relates particularly to petroleum and seeks to provide a more perfect separation of the hydrocarbons which are evolved as a body of mixed vapors from a still, creating more distant fractions than has heretofore been accomplished."

The apparatus is complicated and appears to be complete enough for the accomplishment of the inventor's purpose. Vapors from the still pass through a vertical stripping tower, through a reflux condenser on top and in turn through a vertical rectifying tower, on top of which is an exchange drum and a dephlegmator. The rectifying tower units may be placed on the vapor line in series, according to the degree of fractionation desired. A bubbling arrangement is used in the towers to aid in the work.

Cooling of the vapors is secured by introducing crude oil into the vapor stream and by specific cooling of the drums by means of water. Condensation of the vapors and grading of the condensates is secured by means of automatic controls. Water flows through the units in series countercurrent to the vapor stream, as does the crude oil. The water, however, is in a closed system, while the crude oil is introduced directly into the vapor stream.

Patent Application

The patent is as follows:

The apparatus relates more particularly to the distillation of petroleum and seeks for one of its principal objects to provide a means for effecting a more perfect separation of the hydro-carbons which are evolved as a body of mixed vapors from a still, into distinct fractions than has heretofore been accomplished.

The usual method now practiced by petroleum refiners, is to first condense the vapors from the still in one condenser, thus necessitating the rerunning of the condensate in other stills in order to separate it into the different marketable fractions. This procedure not only greatly increases the operating expense of the plant, but requires a large initial outlay in additional equipment. So far attempts that have been made to fractionate the vapors from the stil hlave resulted in a more or less imperfect separation of the fractions, requiring redistillation in order to obtain the perfect fractions.

The present invention contemplates the fractionation of hydrocarbon vapors into distinct and clearly defined products, the specific gravity of which may be varied at the will of the operator by the regulation of the flow of the cooling medium through each condenser unit by means of automatic temperature controlling devices arranged in the vapor outlet from each condenser.

In order to economize in the amount of cooling water required, it is a further object of the invention to feed the water through the various units of the apparatus successively and concurrent to the flow of the vapors, whereby the water utilized in one condenser as it becomes heated may be utilized to cool fractions of a higher boiling point in the remaining units.

Homogeneous Composition

Furthermore, in order to insure that the product condensed in each unit will be of a homogeneous composition, there is provided in connection with each unit, a tower or column having means therein whereby should any lighter vapors than those desired be condensed, this lighter condensate in its passage through the tower will be reevaporated by the ascending vapor and carried to the next unit.

The invention furthermore contemplates the provision of a separator disposed between each condenser and tower which is adapted to function to return the entrained liquid to the proper rectifying column in order to prevent any of the heavier condensed vapors from being mechanically picked up and swept over into the next unit by the rapidly moving vapors.

Furthermore, in order to vaporize the lighter fractions of the crude or charging oil to relieve the still of a certain amount of work, the invention contemplates the provision of means for initially subjecting the vapors from the still to a bath in the crude or charging oil supply whereby to vaporize and remove the lighter fractions from the crude oil supply without the necessity of passing the same through the still, the crude oil at the same time functioning to condense and remove from the vapor the heavier fractions in order that the same may be returned with the crude oil supplied to the still.

With the above recited and other ends in view, some of which will appear as the nature, purpose and operation of the invention is more fully understood from the following detailed description and the appended claims, reference is had to the accompanying drawings forming a part of this application, and in which;

Figure 1 is a side elevation of the complete apparatus.

Figure 2 is a fragmentary vertical sectional view through one of the units of the apparatus.

Figure 3 is an enlarged fragmentary detailed view of the automatic controlling means for the water cooling supply.

Figure 4 is a vertical sectional view taken approximately on the line 4—4 of Figure 2.

Figure 5 is a vertical sectional view through a modified form of one of the units of the apparatus.

Figure 6 is a horizontal sectional view therethrough taken approximately on the line 6—6 of Figure 5.

Figure 7 is an enlarged detail fragmentary sectional view through the rectifier tower illustrating the construction of the gravity, spray nozzle employed in connection therewith.

Units Detailed

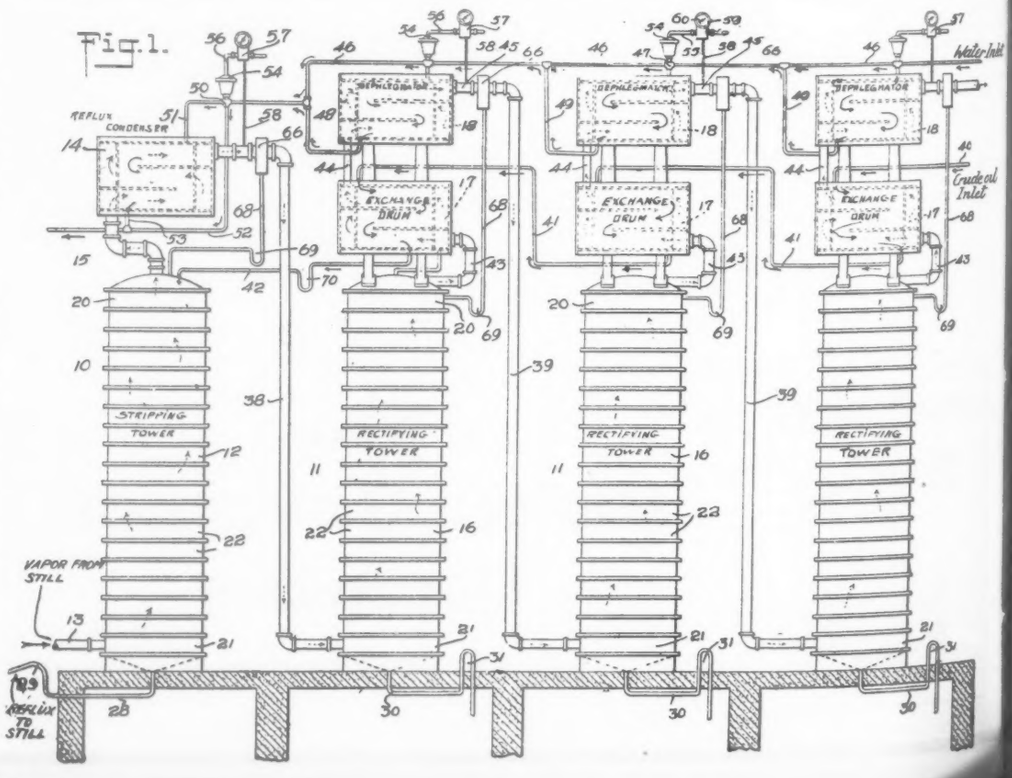
Referring to the drawings by characters of reference, the apparatus consists of a primary unit 10 and one or more secondary units 11, any number of which may be employed in connection therewith and coupled to each other in series. The primary unit includes a stripping tower or column 12 having a vapor intake pipe 13 at its lower end which establishes communication between the same and a still or furnace for conveying the distillate or vapor therefrom to the stripping tower. The primary unit also includes a reflux condenser drum 14 supported in superposed relation thereto and connected thereto by the conduit pipe 15.

The secondary units 11 each include a rectifying tower or column 16 and a pair of superposed drums 17 and 18 respectively constituting an exchange drum and a dephlegmator drum. The construction of the stripping and rectifying towers 12 and 16 are substantially identical and each comprises a plurality of vertically spaced horizontal walls 19 which divide the tower into an upper plurality of intermediate chambers 22. The walls 19 are each provided with upstanding nipples 23 over which are arranged inverted cup-shaped caps 24 having the lower edges notched as at 25 whereby to provide means for trapping and maintaining a supply of liquid at a predetermined level in the upper compartment 20 and each of the intermediate compartments 22. A vertical stand pipe 26 extends through each wall 19 and the upper extremity thereof is disposed slightly above the upper end of the nipples 23 to maintain the levels of the liquid exteriorly of the caps 24 slightly above the level of the liquid within the same.

Passage of Vapors

The lower extremity of the stand pipe is disposed slightly below the upper extremity of the stand pipe of the compartment therebeneath, whereby said lower extremity will be immersed in the liquid supply thereof. By this arrangement the vapors which enter the lower chamber 21 will pass upwardly through the nipples 23 and will be compelled to bubble up through the liquid to the chamber above until it finally reaches the upper compartment 20. In the primary unit 10 a pipe 28 leads from the lower chamber to the still and constitutes a conduit for

(Continued on Page 245)



HI-STEEL FITTINGS

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WHOLESALE DEPARTMENT

11 Broadway New York

EAST EXPECTS NEW GASOLINE CUT; OTHER PRODUCTS REPORTED FIRM

By N. O. Fanning

NEW YORK, Oct. 4.—The expected sharp reduction in gasoline prices was the feature of the eastern refined oil markets during the past week. The Standard Oil Co. of New Jersey and New York started the ball rolling on September 30 by cutting the tank wagon market throughout their respective territories 1 cent per gallon. The following day Gulf Refining cut the price 3 to 4 cents throughout the Atlantic Seaboard States, and the other large marketers met this reduction by making an additional reduction of 2 to 3 cents.

Current tank wagon prices are the lowest since 1915. The tank wagon market in New York is 14 cents per gallon, in New England 13 cents, and in most of New Jersey and States on the Atlantic Seaboard south of that the prevailing price is 13½. This market is more in line with actual prices that have been paid by service station dealers during the last few weeks, but in some quarters it is thought altogether possible additional cuts will have to be made. True, current prices represent a loss to the oil companies, but this cannot stop the inevitable working of the law of supply and demand. Until the distress gasoline is completely wiped out no improvement in gasoline prices is expected.

The sharp reduction in gasoline prices is a blow to many service station dealers who have been selling gasoline for 17 and 18 cents per gallon in competition with those selling the product under well-known trade names for 20 and 21 cents. Now "Socony" and other well-known brands are being retailed at 16 to 18 cents per gallon, and motorists are expected to stick to these brands now that the prices are low.

Gulf Takes Initiative

It was regarded as quite significant in oil trade circles in the East that the Gulf Refining Co. should take the bull by the horns and cut the price drastically, just as it did last year in this territory. Last year in reducing the price several cents per gallon Gulf followed the policy of Standard Oil Co. of Indiana. That Gulf's influence in the eastern marketing territory is great is evidenced by the fact that its reduction was immediately followed by other big independents and Standard Oil companies. It is believed Gulf Refining is the third largest marketer of gasoline on the Atlantic Seaboard, being exceeded only by the Standard Oil Co. of New York and Standard Oil Co. of New Jersey.

Other Products Firm

The fuel oil, kerosene and lubricating oil markets are firm, no change of importance being anticipated at this time. The industrial demand for lubricants is reported to be considerably better than at any previous time this year, but motor trade has fallen off somewhat. Kerosene, fuel oil and gas oil are moving more rapidly into export channels, but the domestic situation is unchanged.

The oil export movement from New York during the past week was heavy. This applies especially to bulk shipments of gasoline, kerosene and lubricating oil. Bulk exports of gasoline amounted to 2,371,528 gallons, of kerosene 4,416,142 gallons and of lubricating oils 2,105,491 gallons. In addition 569,598 gallons of gas oil were exported and 210,049 gallons of varnoline (turpentine substitute).

Included in the bulk movement was the Standard Oil of New Jersey tanker "Benjamin Brewster" with 396,005 gallons of lubricating oil for Holland and 1,709,486 gallons for Germany. The Dutch tanker "Amsterdam" carried 1,769,386 gallons of gasoline to Holland, supposedly for account of the same concern.

The gasoline export movement abroad is expected to be stimulated by the lower prices. Europe especially is inclined to use substitutes in part whenever prices are high, but on the lower basis can be expected to turn back to the pure American product.

The following table shows principal exports of petroleum and petroleum products from New York reported during the past three weeks:

	Week Ended Oct. 1	Sept. 24	Sept. 17
Gasoline:			
Bulk (gals.)	2,371,528	2,286,467	4,161,2
Cases	183,307	238,178	170,0
Kerosene:			
Bulk (gals.)	4,416,142	3,732,356	2,971,1
Cases	216,884	240,180	203,0
Fuel oil:			
Bulk (gals.)	.....	94,642	...
Cases	.....	.....	2,1
Gas oil:			
Bulk (gals.)	569,598	1,534,777	...
Lubricating oil:			
Bulk (gals.)	2,105,491	.....	...
Barrels	3,352	15,004	10,3
Cases	4,836	11,810	1,8
Lubricating grease:			
Barrels	2,147	900	...
Cases	6,537	1,362	...
Paraffin wax:			
Pounds	439,340	1,017,940	942,0
Barrels	.....	736	...
Turpentine substitute:			
Bulk (gals.)	210,049	.....	...
Cases	.....	1,950	...
Petroleum asphalt:			
Barrels	.....	1,070	...
Crude oil:			
Barrels	2,278	5,888	...

Bulk exports during the week ended October 1 were largely to Holland, Belgium and Germany. Shipments to Germany consisted of 1,709,486 gallons of lubricating oil. Germany has figured more prominently in exports from this port during the last three weeks.

Included in exports by the Standard Oil Co. of New York were 125,000 cases of kerosene to Japan. Shipments to other countries of the Orient included 113,000 cases of gasoline to Australia, and 13,200 cases of kerosene to China.

Oil Exports Drop

Receipts of crude and refined oil at Atlantic Coast ports during the week ended October 1 averaged 445,000 bbls. daily, against 474,000 bbls. daily during the preceding week. Imports were the smallest in more than a year, averaging for the week only 55,000 bbls. daily.

September receipts are estimated at 14,374,000 bbls., a daily average of 479,000 bbls. This is the smallest daily average since March last, and contrasts with a peak of 571,000 bbls. daily in June.

The following table shows daily average receipts during September as compared with August, 1924, and September, 1923 (bbls.):

From:	Sept., 1924	Aug., 1924	Sept., 1923
Gulf Coast	270,000	310,000	151,0
Pacific Coast	104,000	127,000	146,0
Imports	101,000	84,000	187,0
Total	475,000	531,000	484,0

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic Coast ports from the Gulf and Pacific Coasts of the United States, and imports, for the last three weeks; also monthly record for the last 13 months (in barrels):

	Week Ended Oct. 1	Sept. 24	Sept. 17
Gulf Coast	251,000	237,000	234,0
Pacific Coast	139,000	138,000	61,0
*Imports	55,000	99,000	180,0
Total	445,000	474,000	484,0

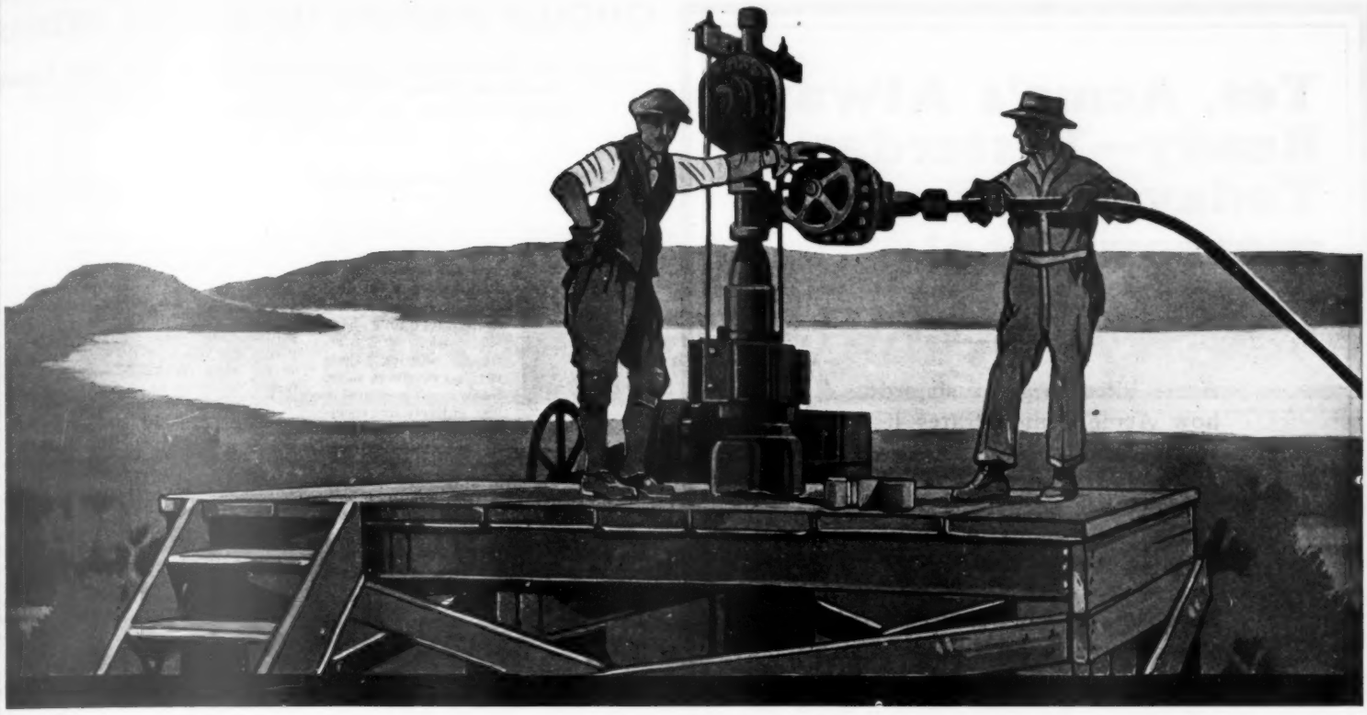
Daily Averages by Months

	Gulf	Pacific	Imports	Tot
Sept., 1924	270,000	104,000	101,000	475,0
August	310,000	127,000	84,000	531,0
July	218,000	86,000	114,000	417,0
June	302,000	133,000	136,000	571,0
May	276,000	122,000	144,000	542,0
April	262,000	148,000	123,000	533,0
March	201,000	137,000	130,000	468,0
February	174,000	175,000	108,000	457,0
January	127,000	159,000	79,000	365,0
Dec., 1923	184,000	163,000	119,000	466,0
November	186,000	141,000	110,000	437,0
October	200,000	164,000	133,000	497,0
September	155,000	146,000	107,000	408,0

*Imports during week ended October 1 included 60,000 bbls., or approximately 9,000 bbls. daily, from Venezuela; remainder from Mexico.

SPAIN'S OIL HOPES

Interest has been aroused in certain circles in Spain by the borings which an oil company intends to carry out at Bonconcillos del Tozo (Burgos). It is said the company is prepared to carry them to a depth of 1,000 meters. Many consider that this, up to the present, is the most interesting region of Spain as regards the existence of oil; it contains a quantity of sand holding up to 147 litres of oil per ton. In the Spanish zone of Morocco a prolongation of the oil basin in the French zone has been discovered



Where Efficiency Means Everything

Monster Wyoming Gas Well harnessed with Darling Gate Valves. No. 1 Wertz Well of P. & R. Corporation, Lost Soldier, Wyo. Initial Flow 43,000,000 Cubic Feet.

By Invitation Member

It hasn't always been an easy problem to find a Gate Valve that would safely harness a high pressure gas well. If you've been "up in the air" on the subject give the Darling Gate Valve a trial and you'll soon admit that your problem is solved.

Darling Gate Valves are playing an increasingly important part in the production of oil and gas. Their year-in and year-out dependability—their ease of operation—and their never failing ability to stay tight, all these qualities are being more and more appreciated by men in the oil and gas fields who are anxious to produce economically and show the greatest possible returns on the investment.

Men who use Darling Valves say that their efficiency reduces production losses to a minimum. They seldom need replacement and seldom need repairs. Built of the best materials with exacting workmanship, their superior performance is a result of years of untiring engineering experimentation.

Let us send you diagrams showing details of construction. Sent upon request, together with catalogue.

DARLING VALVE & MANUFACTURING COMPANY
WILLIAMSPORT, PA.

New York — *Frick-Reid Supply Co.*, *Atlas Supply Co.*
Chicago
Oklahoma City
Houston — *International Supply Co.*, *Petroleum Supply Co.*

DARLING GATE VALVES

Yes, Acme's Always Ready—Yesterday, Today and To-morrow, Too!

Acme likes to get rush orders. That's how Acme demonstrates its real, basic service best.

When oil is needed, it's usually needed badly. Did you ever hear of an oil famine? Why?

Suppose a Retail Distributor gets a sizeable order for several kinds of oil at once. No single refiner can possibly fill it. And the Retail Distributor simply *must* supply it at a given time and place.

Could he do it if it were not for large, reputable Wholesale Distributors like Acme? He could not!

Critics of Middlemen are prone to forget that successive handling is an economic necessity if necessary in order to provide the consumer with *variety at a price.*

No one else except Acme and those like Acme can do this in the case of oil. So Acme stays ready—today, tomorrow and 10 years after tomorrow.

Why don't you make a test and see?

(This is twelfth of a series of informatory advertisements on distribution problems with which the Oil Industry has to contend.)

ACME

Petroleum Company

Executive Offices: 624 S. Michigan Ave., Chicago

KANSAS CITY, MO. Land Bank Bldg. **DALLAS, TEXAS** Magnolia Bldg.

OIL STORAGE PLANTS

Over 6,000,000 Gallons Storage

West Tulsa, Okla. **Blue Island, Ill.**

(***Chicago Switching District***)

CHICAGO JOBBERS HOLD BACK ORDERS

Looking for Reduction in Ohio and Indiana to Parity With Eastern Cut. Kerosene Firm. Distillates in Strong Demand. Fuel Oil Supplies Larger and Demand Good. Gas Oil Easier. Lubricants Unchanged

By J. B. Waldo

CHICAGO, Oct. 4.—The action by the Gulf Co. in reducing the price of gasoline 3 and 4 cents over its territory of 22 States has resulted in jobbers more than ever holding back their orders and in refiners offering their various products more freely. The action was entirely unexpected so far as the local trade was concerned. The reason given by the trade is very generally that such large stocks of gasoline are held along the Atlantic seaboard and at the Gulf refineries and as the season of largest sales had been passed with no material decrease in these supplies, the feeling is that eastern prices are now rather below the parity of those in the districts to the West of Pennsylvania and that further reductions in Ohio and the Indiana territory are likely to follow. The argument seems to be about equally divided between those who expect a crude decline to come first and those who believe it will follow the tank wagon decline in this territory.

Contract Conditions

There is little of fact except as to the stocks of eastern gasoline and the end of the season to these suggestions but the result is very evident in the way jobbers are governing the placing of orders and refiners are offering their stocks. The jobbers are having a good gallonage right now and the weather is delightful for the season. Too warm if anything. But the average jobber does not intend to have any considerable supply of gasoline on hand when the lower prices come if he can help it. Some jobbers are ordering very freely against their contracts but this is in part due to the thought that refiners may not renew the contracts and they want to get as much on the present terms as possible. The local office of Cosden & Co., formerly the Taxman Refining Co., but shortly to be the Cosden Sales Corp., states that so far it has not renewed its expiring contracts and while the matter is not fully settled the possibility is that it will not do so. Some other form of contract may be drawn up but the experience of the last season has not been satisfactory. While the spot market was below the contract prices many jobbers would not take out the full amount of their gasoline. This left the refiner with a lot of gasoline that had to be sold a second time. Just as soon as the tank wagon dropped so contract prices were more favorable than the open market, the jobbers wanted every gallon no matter what they had done when the prices were against them. President Nicholas has advised the members of the National Petroleum Marketers Association to refrain from making any contracts based on competitors' prices as the tank wagon prices of the Standard Oil Co. He says members of his association have under consideration a new form of contract which they are studying and comparing with the market in order that it may be as near fool-proof as possible. As soon as they are satisfied with their work they will submit it to their members.

The action of the jobbers in securing such a large percentage of their supplies through refiners with whom they have marginal contracts naturally restricts the number of orders that come to the open market. For the preceding week the business was very good for the season but it stopped rather abruptly with the first of this week as soon as the crude cut had time to be generally known. It may be that some of the quietness of the present week has been due to the ordering done the preceding week, but jobbers simply say the price situation does not look attractive to them and they are going to wait until they have to order.

Bulk at 6¾ Cents

The bulk of the business has been placed at 6¾ cents with the marketers. There has been some quoting of 6½ cents chiefly by refiners and this has made it more difficult to get the 6¾ cents. The easy feeling increased towards the close of the week and it was stated that Oklahoma refiners were offering freely at 6½ cents for resale and in some instances Navy could be bought at one-eighth less but even at this price the business was not large as the trade from top to bottom is looking for lower prices and expects at least a 6½-cent market for Navy gasoline before the middle of the month. The demand for the higher gravities is as good as could be expected in the circumstances and while the offerings are more liberal prices are fairly well maintained. Natural gasoline has also eased off a little and sales were stated to have been made at 8½ cents for Grade A. There is very little inquiry for the 450 end point grade of straight run gasoline and while blends are inquired for there has been very little business done in them.

Kerosene Firm

Kerosene is firm as horseradish to quote the trade's favorite expression. There has been no weakening in this commodity although it is being more freely offered but not for immediate delivery. The trade finds it hard to buy to sell at anything less than 4⅞ for 41 and 5⅛ for the 42 grade. The demand is simply a fairly good seasonable demand. There is nothing rushing but just a steady pull against supplies. It is the scarcity of offerings that has made the market so firm of late.

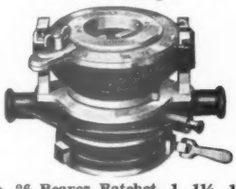
Distillates Strong

The demand for distillates is, according to most of the marketers, as strong as ever. In a few instances there seemed to be a feeling of greater ease but it is not expressed in lower prices at least at present. The demand promises to be very large but as the local industry has really nothing to go by in the way of past years it is at a loss as to just how large it will be. Some have tried to get an idea of the number of new installations of domestic burners during the year but have not been successful. There are so many burners and they are all being pushed so hard that just how many are going to ask for supplies of fuel oils this winter is a puzzle. Some dealers believe there will be a shortage of distillates and others that refiners will put their cracking stills out of commission and so increase their supplies of distillates there will be more than enough.

There are also a great many grades of oil required by the burners and as many gravities of distillates offered. The Standard Oil Co. has reduced its burner oil offerings to one grade from three. This is, according to refinery specifications, a 34-36 distillate, amber to red in color, flash of 150° to 160° F. and a low cold test with doctor test sweet. This is a different commodity from their Stanolind furnace oil of last year but it should make an excellent furnace oil. The low flash is important. The light from the pilot if gas is used or the spark if electricity is relied upon does not always work if the flash is low and then there is some trouble from excess of oil in the fire box. The Standard's tank wagon price is now 8½ cents in lots of 200 gallons and 9½ cents in less deliveries. It also asks ½ cents extra for deliveries made on Sundays and holidays. The Shell distillate is now 8 cents for its 37-40 amber and 9 cents for prime white. It will not take business where bucket deliveries are necessary. Some of the local distributors are asking ½ cent extra for bucket deliveries. The

Welcome to Booth 69 in the Texas Bldg.

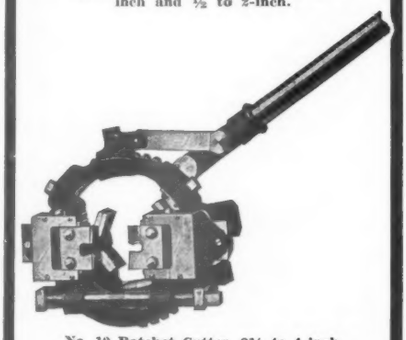
A Few of the Many Beavers You'll See in Booth 69, Texas Bldg.



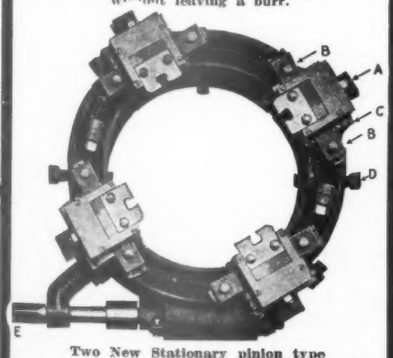
No. 26 Beaver Ratchet, 1, 1¼, 1½, and 2-inch without changing dies or bushings.

No. 41 Beaver, 2½, 3, 3½ and 4-inch without changing dies.

Beaver Square End Cutters, ⅛ to 1 inch and ½ to 2-inch.



No. 10 Ratchet Cutter, 2½ to 4-inch without leaving a burr.



Two New Stationary pinion type Beaver Square End Cutters.

No. 106	2½	to 6-inch
No. 108	4½	to 8-inch
No. 112	9	to 12-inch

In Charge of our Exhibit:—

Mr. Harry R. Williams, Assistant General Sales Manager; Mr. Lee Irby, Southern District Manager.

If you buy or sell Pipe Threading and Cutting Tools, The Borden Company exhibit at the International Petroleum Congress in Tulsa, Oct. 2 to 11, will be of real interest to you.

At this exhibit we will display and demonstrate the numerous distinctive time, trouble and labor saving advantages of Beaver pipe tools which have made them standard equipment in leading pipe shops everywhere.

In addition to the continuous demonstration of the full line of Beavers, ⅛ to 12 inches inclusive, we shall show you the

New Stationary Pinion Type Beaver Square End Pipe Cutters

No. 106—2½ to 6 inch
No. 108—4½ to 8 inch
No. 112—9 to 12 inch

These new cutters operate on the same speedy and easy cutting principle found in other Beaver cutters, but owing to their larger size cutting range, are operated by a ratchet handle applied to a pinion which in turn actuates a worm gear, thus permitting their use in extremely close places or permitting the use of power when desired. One man operates these tools.

It will be well worth your while to visit our booth to see these ingenious new cutters in operation.

The latch string is out to you.

Welcome! to Booth 69 in the Texas Building.

THE BORDEN COMPANY
514 Dana Ave.,
Warren, Ohio

BEAVER

The Easiest Way To Cut Good Threads

A Development in High Temperature Insulation

for Severe Service

DESIGNED for excessive temperatures and extreme conditions, Sil-O-Cel C-22 Insulating Brick are made from the same material as standard Sil-O-Cel Brick, kiln-burned and pressed into fire brick sizes. This gives a more compact brick with a hard finish suitable for exterior applications and still possessing an exceptionally low heat conductivity—characteristic of all forms of

SIL-O-CEL

TRADE MARK REGISTERED U S PATENT OFFICE

HEAT INSULATION

Sil-O-Cel C-22 Brick are free from shrinkage at temperatures in excess of 2000° F., and are the most effective and substantial form of insulation where temperatures behind the refractories exceed 1600° F. For all temperatures below 1600°F., standard Sil-O-Cel Insulating Brick are recommended.

New Bulletin Just Issued

Just off the press is a new bulletin containing complete information on both Sil-O-Cel C-22 Insulating Brick, standard Sil-O-Cel Insulating Brick, notes on wall construction and methods of bonding, tables of brick sizes and other authoritative data of interest to every user of high temperature equipment.

Sent free upon request. Ask for Bulletin C-3 or Mail the coupon.

CELITE PRODUCTS COMPANY

NEW YORK - 11 BROADWAY. CHICAGO - 53 W. JACKSON BLVD.
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OFFICES AND WAREHOUSES IN PRINCIPAL CITIES
CELITE PRODUCTS LIMITED, NEW BIRKS BLDG., MONTREAL, CANADA
CELITE PRODUCTS CORPORATION, WINDSOR HOUSE, LONDON, S.W.1., ENGLAND.

Celite Products Company
Gentlemen:

Without obligating me in any way, send your new Bulletin C-3 on Sil-O-Cel C-22 Insulating Brick and Sil-O-Cel Insulating Brick.

Name.....

Position.....

Company.....

Address.....

oil burner business needs some standardizing right now and one of the most important is to get away from too many kinds of oil and too many kinds of installations. In the natural order of growth some concerns will make a greater success than others. These in time will absorb such smaller competitors as have anything of merit in their plant or organization and the others will simply fall away. The oil industry should make itself understood as to where it stands and do what it can to prevent abuses such as too small tanks, cheap installations, too exacting specifications for fuel. The prices for fuel are very liable to advance and the burners must be economical and efficient. Some of the coal men are falling in line with the demand for oil for fuel and several have added storage and tank trucks and others have an agreement with some oil man to handle their oil orders. It is even rumored, but denied, that our largest coal distributor has considered going into the domestic burner oil business.

Fuel Oil in Demand

Fuel oil continues in demand and the supplies are larger. Dealers here state that while they had to hunt for 90 cents fuel oil they are now being offered it freely and some is being sold at 87½ cents although not full 24-26 refinery fuel oil. The Illinois Brick Co., a mereiless buyer but not strict as to specifications, has bought 80 cars over October at 87½ cents and some strictly half of one per cent sulphur oil has been sold at 92½ cents which shows a little weakening in the market. Marketers are more than ever convinced there is a larger supply of fuel oil to be had than recent offerings of refiners would indicate. Some dealers turned down business at 90 cents last week and they state their customers claim they got the oil at that price. On the other hand some of the refiners and dealers are certain prices are low today and will advance from now on. The political uncertainty is still deterring some of the larger concerns from placing contracts. One thing that the trade watches here as carefully as it can is the demand for fuel oil from the southwestern smelters and refiners who have been buying in Texas instead of California this season. The idea is that if these orders cease something will break in North Texas. The advances in Smackover crude have pushed Smackover fuel up to at least a parity with refinery fuel oils.

Gas Oil Easier

Gas oil is a little easier and dealers were able to shade the 2⅞ cents price that has stood for some time. The bottom seems to be around 2¾ cents but supplies were reported to be more plentiful and as there was no change in the demand the tendency was to give the buyers a little lower price, just a shading of the market. There is quite a demand for gas oil for burner fuel and many oil men are storing the gas oil to sell for so-called fuel oil which with several burners means a 30-32 fuel oil. There is little difference in price. Sales were reported of the 30-32 fuel oil at $1.15 during the week but this is rather below the usual asking price and with gas oil at $1.26 a barrel the oil men feel they prefer to sell their customers the higher gravity. Some report they have had to take out deliveries of the heavier oil during cold weather or thin it with a light distillate to make it work properly but of course this would not be the case with all of the 30-32 oil.

Lubs Unchanged

Lubricating oils are quiet and practically unchanged. The export demand is not out of the ordinary right now. The industrial trade is buying but not greatly in excess of recent records. Eastern refiners are asking more for their oils but the local trade reports no change in prices.

Tank Wagon Holding

Tank wagon prices are being better maintained over the territory but there are still some spots where the extreme competition has kept prices unsettled. The general opinion seems to be there will be another decline in prices before the end of this month over the Standard of Indiana territory. The declines in the East and Southeast have left the Ohio prices above the level and that is expected to be reduced at least one cent and this will be a reason for a lowering of prices in the eastern part of the territory.

Reports from distributors show a good gallonage and the demand for gasoline is reported to compare very favorably with the summer months. The weather has been much more seasonable than in August and July. During the last week the general passenger agents of the railroads have been in conference in New York City with regard to the competition from the bus lines. These lines are growing with great rapidity and none but the regular traveler can realize how many places can now be reached by busses. They run for hundreds of miles in some cases and make their trips as regularly as the railroads. The building of good roads has made this possible. The truck lines for freight and the bus lines for traffic will probably be welded into larger commercial organizations at no distant date. The gasoline consumption of the 10,000 passenger busses now operating in the cities and over the country roads must be considerable and it is a steady year round demand like that of the taxi cabs in the cities and towns.

GULF COAST

(Continued from Page 64)

is deepening No. 3 on the Gates-Kirkpatrick ranch in the northeastern part of Webb County. The Witherspoon Oil Co. is rigging to drill on surveys No. 122 and 50.

The Boyd Oil Co.'s No. 1 Petty, a wildcat test, is drilling below 3,280 feet.

Brady Brothers' No. 1 Baldridge, in the shallow sand section of Milam County, is reported to be good for 20 bbls. at 873 feet.

In Jim Hogg County, the Shasta Oil Co.'s No. 1 Holbein, east of the Wenz-Finch & Farris gasser, is coring at 2,100 feet. The Weber Oil Co. set casing at 2,700 feet in No. 4 Los Animas. The Simms Petroleum Co. is starting No. 1 Hinnant. The Humble Oil & Refining Co. is drilling two formation tests on the East Ranch to 1,000 feet.

Deep Coastal Wildcat

The Sun Oil Co.'s No. 7 Cade at High Island Dome, in Galveston County, near the Gulf of Mexico, is drilling below 5,010 feet. It is an open hole with the exception of 200 feet of surface casing. Same company's No. 1-C Cade is around 4,650 feet. In the shallow sand part on the dome, Carter and others' No. 8 is drilling at 265 feet. Patton's No. 1 Cox is around 140 feet. Flynn & Co.'s No. 1 is bailing.

NEW OIL CORPORATION ORGANIZED BY TEXANS

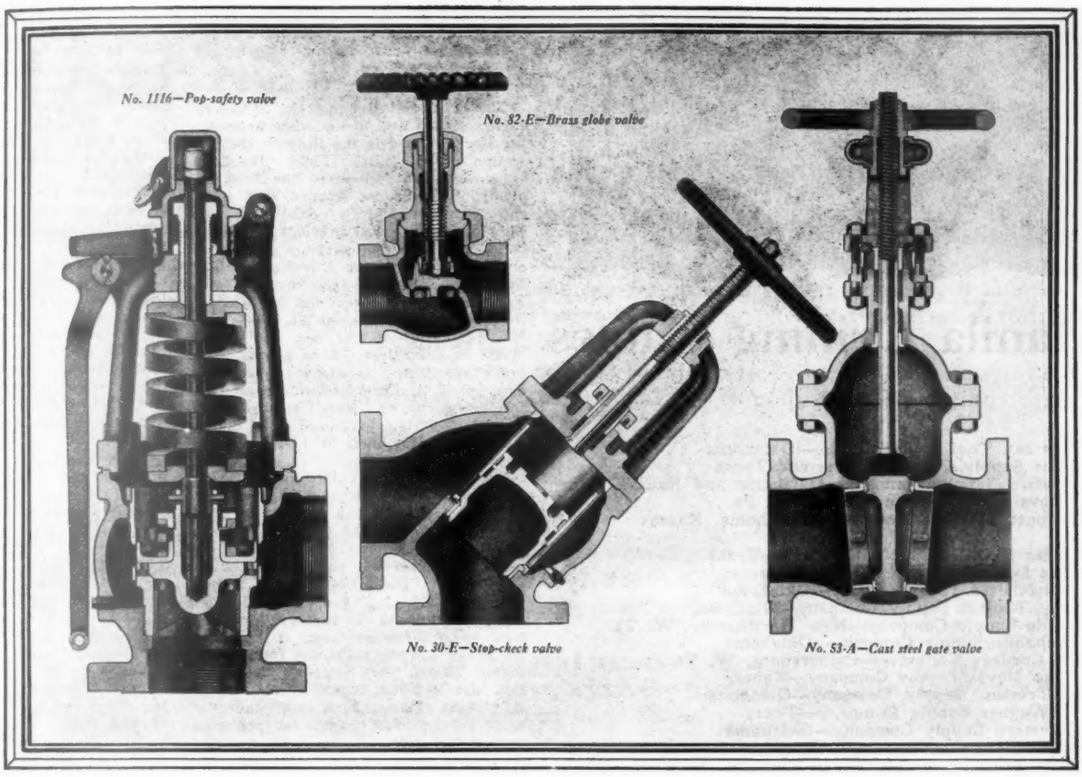
WICHITA FALLS, Tex., Oct. 4.—The charter which had been submitted to the Secretary of State's Department for its approval by the Faith Oil Corp. of Wichita Falls, has been approved and placed on file at Austin. The new organization has a paid up capital of $500,000.

W. S. Abbott of Wichita Falls is president and secretary; A. A. Sterling of Houston, vice president; W. P. Markley and Charles Paggi of Beaumont, directors. W. J. Green of Wichita Falls will have charge of operations in this district.

The company has at present 31 producing wells in the Burkburnett and Electra districts of Wichita County, with other properties in Archer County. In all 3,500 acres of proven and wildcat properties are owned or under lease in the various oil sections of North Texas.

RUMANIAN HOME PRICES

The three largest oil concerns in Rumania, Steaua Romana, Astra Romana, and Romano-Americana, have agreed to a scale of prices for inland consumption, from September 1, as follows: Lamp oil, 3 lei per kilogram; fuel oil, 2 lei; Motor petrol, 8 lei.



YOU WILL APPRECIATE CRANE ACCESSIBILITY

In addition to the provision of extra strength and great durability in Crane valves and steam specialties, Crane designers always see to it that every inside part is easy to get at. They realize the importance of saving for you every minute possible when you have to inspect or clean out a valve or automatic device in a hurry.

CRANE

GENERAL OFFICES: CRANE BUILDING, 836 S. MICHIGAN AVENUE, CHICAGO
CRANE LIMITED: CRANE BUILDING, 386 BEAVER HALL SQUARE, MONTREAL

Branches and Sales Offices in One Hundred and Forty-eight Cities
National Exhibit Rooms: Chicago, New York, Atlantic City, San Francisco and Montreal
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CRANE EXPORT CORPORATION: NEW YORK, SAN FRANCISCO, SHANGHAI, CHINA
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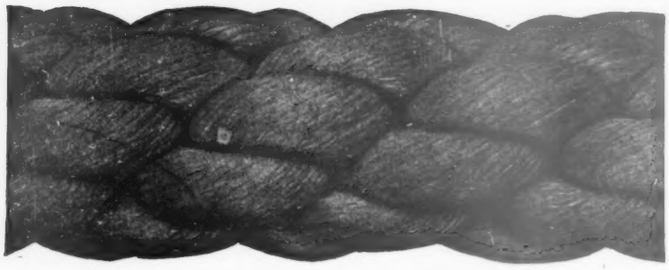
Crane "Clermont" Lavatory.

"Drill With Manila"



Wall Manila Drilling Cables

Sold by

American Tool & Supply Co.—Oklahoma
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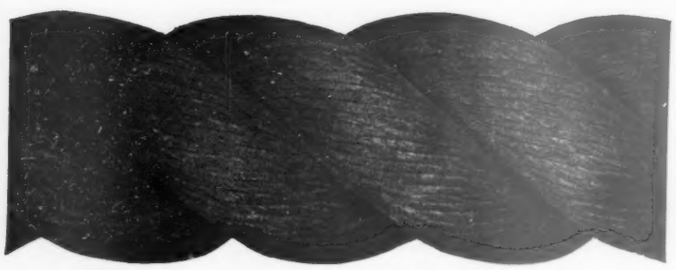
Bovaird & Company—Bradford, Pa.
The Bridgeport Machine Company—Oklahoma, Kansas and Texas
Decker Tool & Supply Company—Texas
The Drillers Supply Company—Kansas
Hinderliter Tool Company—Oklahoma
Murray Tool & Supply Company—Oklahoma
New Martinsville Supply Company—New Martinsville, W. Va.
Republic Supply Company—Oklahoma
Rope & Cordage Company—Parkersburg, W. Va.
The Staves Supply Company—Kansas
Tennant Supply Company—Oklahoma
Wagner Supply Company—Texas
Western Supply Company—Oklahoma
Western Drilling Tool & Supply Company—Kansas
Williamsport Wire Rope Company—Oklahoma, Kansas, Arkansas and Wyoming

WALL ROPE WORKS, INC.
Established 1830
General Offices: 48 South Street, New York City
Factory: Beverly, New Jersey
Oil Field Branch: Bartlesville, Okla.
Stocks throughout the oil fields.

EST. 1830 WALL CABLE TRADE MARK

(See our exhibit at the Oil Show)

Pure Manila Bull Ropes
(Walk Laid)



Worthy of Trust

CALIFORNIA FIELDS

(Continued from Page 60)

only development of interest is the Shell's deep test, No. 6-A Slusher, which is being cleaned out after being plugged back from 6,113 feet to 6,014 feet. The Union will probably abandon No. 2 Farwell because of its unsatisfactory showing at 3,908 feet.

Miscellaneous Drilling

The O'Donnell Refining Co. is experiencing a good deal of difficulty in finishing No. 2 Strong in the Rideout Heights section of the Whittier Field. The hole, which is 4,923 feet deep, has been cemented three times but is still in a rather unsatisfactory condition. It showed up quite well previous to the cement jobs and the company has hopes of ultimately finishing a producer. The Petroleum Midway (California Petroleum) suspended operations on three of its tests, No. 1 Pellisier at 4,481 feet, No. 1 Rideout at 297 feet and No. 1 Witte at 4,682 feet. It is reported the order was issued to suspend operations because of a misunderstanding or misinterpretation of lease requirements. The company is going ahead in its fourth well, No. 1 Hamburg, at 4,350 feet, the formation being a hard gray sand. The Standard Oil's No. 1 Patton is drilling ahead in a gray shale at 4,420 feet. The Associated Oil Co. has started work on No. 41 Hualde in the Coyote Field, an offset to the Union's No. 7 Hole, the largest producer but shallowest well in the district. The Union secured a good showing in No. 1 Tuffre at Richfield at 4,335 feet and is cleaning out preparatory to running a string of 8¼-inch. At Newport, a short distance from Huntington Beach, the Newport Petroleum Co., after drilling to 4,260 feet, is contemplating plugging back in an endeavor to secure production from the tar sand around 350 feet. It has been reported the Union Oil Co. is considering the drilling of a well in this general area but it could not be confirmed.

The Standard Oil Co. is pulling out of Anaheim and has abandoned No. 1 Wagner at 5,635 feet. E. J. Miley, however, is still working in this wildcat area and going ahead at 2,756 feet. The Shell's Bell wildcat, No. 1 Loomis, is still dry at 4,900 feet, with prospects for production not any too encouraging. The same company suspended operations on its test at Los Cerritos, northwest of Long Beach, at 6,285 feet and an early abandonment would not be surprising. The Beatty Oil Co.'s test at Eagle Rock bailed dry during the week and it is the intention of the company to resume drilling at 4,380 feet. Neither the Pan American's No. 1 Pacific Southwest at 5,200 feet nor the Shell's No. 1 Fortuna at 5,000 feet, in the vicinity of El Segundo, showed anything of importance. At La Mirada the Associated has reached a depth of 4,974 feet in No. 1 McNally, while the Standard's No. 1 Culp at Los Nietos is going ahead in a gray sand at 3,835 feet.

Spudded in at Saugus

The Union spudded in its No. 1 Saugus-Newhall on the County Highway a few miles from the city of Saugus. The Associated has followed the Union into this area and is moving in materials for a standard derrick. The Midland Oilfields was not successful in recovering all of the drill pipe stuck in its well at Wheeler Ridge and the company is contemplating plugging back to around 4,750 feet to try out some showings noted at this depth. The Standard Oil Co. spudded in its San Emidia test on Section 28-11-22 and is reported to have encountered granite at 200 feet. A rig has been erected for the second hole on this section and the company should finish rigging up shortly. Neither the General Petroleum nor the Globe Petroleum made any progress at Commanche Point during the week. The Marland cemented a string of 8¼-inch in its hole at Lost Hills at 4,338 feet, following, it is reported, a satisfactory showing. The Standard on Section 5-27-20 is just getting under way and shows 860 feet of hole. At Rio Bravo the Union has reached a depth of 2,725 feet in its test on Section 4-29-25. The Pan American is still fishing for some drill pipe in its well on the Kern River Bl... just outside of Bakersfield and, while some of the fish have been recovered, there is still enough left in the hole to hold up operations.

It is reported that the St. Helens ha... some good showings at 2,280 feet on Se... tion 14-29-28, but because of the fact that the well has been entirely fenced in, it was impossible to confirm the re... port. The Central has cemented a 6¼-inch in its wildcat on Section 36-25-2... E. J. Miley has landed and cemented a string of 8¼-inch at 4,323 feet in No. 1 Krayenhagen near Coalinga. The hauling of this pipe was a precautionary measure only and did not result from any particular showing, as any production secured at this point will undoubtedly be deep. The General Petroleum is running a 6¼-inch in its Kettleman Hills test, drilled to 5,269 feet. This move is also a precautionary measure and does not indicate the company expects to bring in a well at the present depth, although the showings have been rather encouraging. The Associated, Bolsa Chica and Marland Oil Co. have all made technical spuds, each showing about 500 feet of hole.

There was nothing of unusual interest in any of the many wells being drilled in Venture County during the week. The Nugent well at Santa Barbara is in bad shape as the result of a stuck drill pipe and it would not be surprising if this 3,678-foot hole were junked. The General Petroleum on Section 6-9-33 is drilling ahead at 1,952 feet. The Petroleum Midway's test in San Benito County, No. 1 Sargent, is down 5,145 feet with indications pointing to a dry hole. R. H. Shannon on Section 15-22-27 in Tulare County secured an unusually good showing of oil and gas at the shallow depth of 655 feet. The well is still being pushed ahead, however, and at present shows 658 feet of hole, at which depth the showings continue. The General Petroleum has several hundred acres under lease nearby and it is quite probable this company will put down a test if the Shannon well is not carried to a successful conclusion.

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended September 27 totaled 1,091,000 bbls., a daily average of 155,857 bbls., against 665,000 bbls., a daily average of 95,000 bbls. for the week ended September 20:

	Week ended Sept. 27
At Atlantic Coast Ports—	
Boston	72,000
New York	763,000
Philadelphia	175,000
Others	81,000
Total	1,091,000
Daily average	155,857
At Gulf Coast Ports	
Total Atl. and Gulf Coast Ports	1,091,000
Daily average	155,857

Imports of crude and refined oils at the principal ports for the week ended September 27 total 1,254,000 bbls., a daily average of 179,143 bbls., compared with 1,784,000 bbls., a daily average of 254,857 bbls. for the week ended September 20.

	Week ended Sept. 27
At Atlantic Coast Ports—	
Boston	66,000
New York	218,000
Philadelphia	140,000
Others	168,000
Total	612,000
Daily average	87,428
At Gulf Coast Ports—	
Galveston district	360,000
New Orleans and Baton Rouge	146,000
Port Arthur and Sabine district	116,000
Total	642,000
Daily average	91,714
At all United States Ports—	
Total	1,254,000
Daily average	179,143

FOREIGN DIVISION'S PROGRESS

Development of Axelson Machine Co.'s foreign service division is progressing satisfactorily under the management of Ray M. Humphreys, who has just been appointed manager of the division.

See these on display at

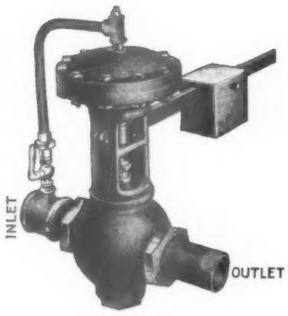
BOOTH NO. 9

For Greater Perfection in the Fine Art of Petroleum Refining

THE FULTON DUPLEX SENSITIVE GAS GOVERNOR OR REGULATOR FOR NATURAL GAS

Simplicity and accuracy are supreme; no auxiliary regulators, needle valves, gasometers or other devices to complicate its operation. Power to operate derived from two diaphragms of equal area moving in opposite directions.

Made in sizes from two-inch to 24 inches; prices will be submitted on request; weight 275 pounds to 5,500 pounds. Write for complete description.

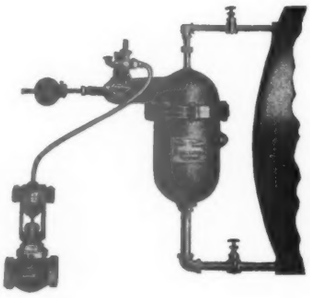


THE FULTON BACK OR CHECK PRESSURE REGULATOR

Wherever it is necessary to stop the flow of gas in a pipe line when the pressure falls to a given point the Fulton Back or Check Pressure Regulator serves the purpose with accuracy and excellence.

Sometimes it is necessary to stop the flow of gas in a line, or system of lines, when the pressure has fallen to a point lower than is considered advisable.

Sometimes it is necessary to keep the pressure higher in one portion of a system. This regulator serves many purposes.



AUTOMATIC REGULATOR FOR THE OIL SUPPLY IN ABSORBER TANKS

In the process of the manufacture of gasoline by absorbing the gasoline in oil and subsequently separating the gasoline from the oil by distillation, it is necessary to maintain a constant oil level in both the absorbing tank and the still.

For this purpose, we offer THE VIGILANT OIL LEVEL REGULATOR, which will accommodate itself to any type of absorber or steam still, and maintain a constant oil level under all conditions of temperature and pressure.

All of the new features embodied in the Vigilant Feed Water Regulator, which we invented and placed on the market twenty-five years ago, are to be found in the Vigilant Oil Level Regulator.

THE FULTON DUPLEX SENSITIVE VACUUM REGULATOR

On a system discharging gases to a line, under light vacuum, it is sometimes desirable to maintain atmospheric pressure.

For this purpose, we manufacture the DUPLEX VACUUM REGULATOR, which acts as a safeguard when used on the vapor lines connected to storage tanks, for the recovery of the gases, the purpose being to prevent the pulling of a vacuum.

This Fulton Sensitive Vacuum Regulator is made with inlets ranging from 2 to 12 inches, weighing from 275 to 1,950 pounds. Prices will be submitted on request.

See these on display at

Get complete details at

The Chaplin-Fulton Manufacturing Co.

28 to 34 Penn Ave. Pittsburgh, Pa.

BOOTH NO. 9

25 CENTS per line first insertion; 15c per line each additional insertion. Cash in advance.

CLASSIFIED WANTS

MAIL your advertisement now. It will be published next week. Cash with order.

FOR SALE—EQUIPMENT

AIR OUTFITS — Standard, complete, new, $55 up. Vulcanizers Supply Co., No. 7 E. 14th St., Kansas City, Mo.

PIPE
All Sizes, Rethreaded, Coupled
Ready for Use, Immediate Delivery
Absolutely Guaranteed
D. WOLFF AND SONS
2213-23 So. 4th St. St. Louis, Mo.

A BARGAIN—Practically new 10-ton Holt Caterpillar and three Troy Trailers all in A-1 condition. Address Box 82. Morris, Okla.

USED TUBULAR BOILERS, Air Compressors, Gas and Steam Engines, Pumps, Pulleys, etc. We buy and sell. What have you to offer? Ask for our stock sheet of used machinery.
LANDRETH MACHINERY CO.
Joplin, Mo.

FOR SALE—Complete Gasoline Plant, 2 70-H. P. Bessmer gas engines, 1 12x6x 12 Ingersol Rand Compressor, 1 17x12 Ingersol Rand Duplex Pump, high and low storage tanks, electric light plant. R. W. Russell, St. Marys, W. Va.

CATERPILLAR TRACTORS
Six Ton tractors at one-fourth price are doing 10-ton jobs on 1-ton fuel economy. Write for details.
THE SALES CORPORATION
Alexandria, Virginia

ENGINES, Steam, Gas and Gasoline. Pumps, Air Compressors, Mining and Hoisting machinery. Machine shop, Wood working, Factory, Mill and Electric Machinery and supplies; furnish and install freight, passenger and hand elevators. New, slightly used and rebuilt machinery at a bargain. Builders of machinery and elevators.
RAFINER ELEVATOR WORKS
Kansas City, Missouri

FOR SALE—Eight 7-200-gallon tank cars, standard gauge, also five 5,000-gallon tank cars, for trolley car track; sixteen 1-ton Koppel coal charging cars for boiler rooms. Immense stocks of Pipe, Valves and Fittings in all sizes. Wire, phone or write. Tate, Fisher & Rice Co., 258 Washington St., Boston, Mass. Telephone Main 8365.

STEAM EQUIPMENT FOR SALE

Engines

1—10x24 Corliss.
1—12x30 Murray Corliss, Girder Frame.
1—16x36 Allis-Chalmers Corliss.
1—18x36 Sious City Corliss, Girder Frame.
1—22x42 Bass Foundry Co. Corliss.
1—14x20 Atlas Plain Slide Valve.
1—14x16 Clark Plain Slide Valve.
1—12x16 Nagle Plain Slide Valve.
1—12x16 Elyria Plain Slide Valve.
1—11x14—Buckeye, Automatic.
2—10x16 Atlas, Automatic.
12—Small Vertical and Horizontal Engines.

3—1½" Duplex Steam Pumps.
7—2" Duplex Steam Pumps.
9—3" Duplex Steam Pumps.
5—4" Duplex Steam Pumps.
19—Large Duplex Steam Pumps.
Complete specifications and Prices on request.

MACHINERY & SUPPLY CORPORATION
Dept. 35,
Joplin, Mo.

FOR SALE—One Putnam 24" swing by 24' bed screw cutting engine lathe. Will cut threads from 1/16- to 1". Also two 45 horsepower Charter Gas Engines in good repair. Address Wm. Schick, Topeka, Kans.

FOR SALE—EQUIPMENT

FOR SALE
Several cars of 8¼-inch 24-lb., and 6⅝-inch, 17-lb. casing, all in first class condition and ready to ship. Write or wire Box A-432, The Oil and Gas Journal, Tulsa, Okla.

GUARANTEED TANK TABLES
Tracings $2.50 to $5.00 according to size of tank. White cloth prints 75c to $1.25 each. Blue prints 25c to 75c each. Send strapping report and instructions to H. F. Heydrick, 208 South 12th Street, Muskogee, Okla.

BRAND NEW, original crates, 2 No. 4 Toledo pipe threaders for 9", 10" and 12" pipe. Price $185.00 each f. o. b. cars, New York. Allen Ashley, 152 W. 42nd Street, New York, N. Y.

FOR SALE
5 miles 6-inch line pipe, 19 pounds per foot.
10 miles 8-inch line pipe, 29 pounds per foot.
Located in Indiana and Ohio. Good condition. Recessed couplings. Max Zeigler & Brothers, Muncie, Ind.

TANK CARS
8,000-gallon, all steel construction, with steam coils. Bargain price.
In stock for immediate shipment; cars of any kind, both passenger and freight.
HOUSTON RAILWAY CAR CO.
Houston, Texas

FOR SALE—150 feet of 70-pound 15½-inch; 1,000 feet 40-pound 10-inch; 2,700 feet 8¼-inch 32-pound 8-thread and 3,400 feet of new 24-pound 6¼-inch 10-thread J. & L. Woodlawn. Special casing; 100,000 feet of 2-inch line; 20,000 feet of 2-inch tubing and rods; also excellent powers, engines, tanks and other equipment. J. F. Arnold Co., Decatur, Ind.

FOR SALE—One 25 h. p. and one 15 h. p. Fairbanks Morse Y type standard engine. One triplex pressure Fairbanks Morse oil pump horizontal type 100-barrel per hour capacity. One Delco Station lighting outfit. All in first class condition as good as new. Address R. N. Marble, 3336 Country Club Place, Wichita, Kans.

CASING BARGAINS FOR CASH
Second hand, A-1 condition
2,000 feet, 15½ inch, 70 pound;
6,000 feet, 12½ inch, 50 pound;
10,000 feet, 10 inch, 35-40 pound;
5,000 feet, 8¼ inch, 28 pound.
SHEFT'S SUPPLY, Box 82 or
Phone 105, Morris, Okla.

PIPE COUPLINGS
STANDARD OR LINE
BOUGHT AND SOLD
Send us your list
and inquiries
We handle nothing but
Good clean A-1 stock

N. O. CRESSMAN CO.
Incorporated 1912
Philadelphia, Pa.

FOR SALE—Bessemer gas engines 15 to 165 h.p. A lot of others up to 350 h. p. Belt and direct drive compressors. Oil and steam engines. Generators and compressors. R. W. Russell, St. Marys, W. Va.

Watch this space from time to time
For Real Bargains
MATHESON STEEL PIPE
For Immediate Shipment

Approximately 24,000 feet 8" and 10,000 feet 6" Matheson joint steel pipe, new of first quality grade, in lengths of 18 to 20 ft., dipped both inside and outside with tar paint. We have a real bargain price on the entire lot, or, we will split it up in lots to suit the buyer. This pipe is especially adapted for gas and water lines.

We also carry pipe for all purposes, thoroughly reconditioned with perfect threads and collars, practically good as new, at a considerable reduction in price.
JOS. GREENSPON'S SONS IRON & STEEL CO.
Department O St. Louis, Mo.

FOR SALE—EQUIPMENT

SPECIAL SALE OF TRAILERS
Roller-bearing steel trailers; 1½ and 2-ton capacity; complete or parts for same at bargain prices; come and see them. Reedy Auto Truck & Trailer Co., 900 N. Xanthus, Tulsa, Okla., Osage 862.

FOR SALE—A sacrifice, two 38 Star tractor drilling machines in good condition; plenty good tools; $2,000. Box 496, Bowling Green, Ky.

FOR SALE
Complete string of standard tools from 18" down. 45 h. p. Oil well boiler, everything in good condition, would consider trade on clear Kansas land. C. E. Hawks, Emporia, Kansas.

12" PLAIN END PIPE CAPS
For sale, two miles twelve-inch plain end thirty-pound pipe ready for loading Independence, Kans.
HOCKMAN & FEES
Chanute, Kans.

LEASES—PRODUCTION

SELL LEASE Oklahoma oil land, near production. Timbered coal section. Belle Clark, 216 De Forest Ave., Bridgeport, Conn.

PRODUCTION—Large or small; drilling acreage, leases, royalties. Make specialty of fee acreage. Large acquaintance in Wichita. Clay, Baylor, Archer, and Wilbarger Counties. Stehlik & Baber, Kemp Hotel, Box 467, Wichita Falls, Texas.

MISSISSIPPI next big oil State; 10,000 acres leases, Grenada County for well; good geology. W. C. Brooks, 282 S. Front St., Memphis, Tenn.

REAGAN COUNTY LEASES

$3.50 an Acre

Leases 4 miles north of Wrightsman test in Reagan County can now be had for $3.50 an acre. Well is now drilling. Mr. Wrightsman is a very successful operator from Oklahoma. Many big companies hold leases nearby. We also have many other leases along Marathon Fold and Balcones Fault. Here are a few of them:

Gaudalupe County	$3.00 an acre
Pecos County	1.00 an acre
Medina County	.50 an acre
Gillespie County	.10 an acre
Kerr County	.25 an acre
Atacosa County	2.00 an acre
Karnes County	2.00 an acre
Zapata County	1.25 an acre
Bexar County	3.00 an acre
Hays County	.30 an acre
Sterling County	1.00 an acre
Coke County	1.00 an acre
Irion County	1.50 an acre
Bandera County	.40 an acre
Wilson County	3.00 an acre
Comal County	.35 an acre
Travis County	.35 an acre
Terrell County	.75 an acre
Concho County	1.50 an acre
Nolan County	1.00 an acre
Schleicher County	1.00 an acre
Sutton County	1.00 an acre
Reagan County	3.50 an acre
Crane County	1.00 an acre
Upson County	1.00 an acre

The above are prices in tracts of 10 acres. Prices are less for larger tracts. All leases are now 5 or 10-year commercial leases giving the buyer seven-eighths of the oil and requiring no drilling. Get our free map of Texas showing Balcones Fault and Marathon Fold and our list of leases before you buy elsewhere. We will save you money. Write today. No obligation.

GULF REALTY CO.
290 Bedell Bldg., San Antonio, Tex.

OIL AND GAS ROYALTIES located in heart of Panola County Gas Field. Three big lines now operating with Magnolia line nearing completion. We are in a position to secure you proven and semi-proven acreage at a very low figure. The big companies are buying every day. Investigate the big profits obtained from gas royalties. Banks Abstract Co., Box 153, Carthage, Tex.

LEASES—PRODUCTION

ASHTABULA COUNTY, Ohio gas and oil land, heart old gas field, Markham gas station, pipe lines. Gas wells on lands adjoining. This sixty-three acres for sale on main paved highway, valued for gas, oil, orchard tract, gentleman's country home. Near college town and county seat. Sixty miles east of Cleveland. Part of "Noble" estate just closing, price $6,500. Address W. D. Fort, 10024 Burton Ave, Cleveland, Ohio.

LEASES FREE
To parties who will drill one well at once in Clark and Edgar County, Illinois, close to production, no dry holes, depth 300 to 600 feet. Address Box 192, Rockville, Ind.

DRILLING BLOCK on structure in Western Kansas. Will give 8,000 acres for small bonus and 3,500-foot test. This block near tests being drilled by Amerada, Marland, United and others. Box A-430, The Oil and Gas Journal, Tulsa, Okla.

SHALLOW FIELDS
Leases in Wichita, Archer, Young, Baylor, Throckmorton, Shackelford and Callahan Counties, Texas. Lowest prices, best locations, near drilling wells. Write for list. P. R. McIntosh, 215 Neil P. Anderson Bldg., Fort Worth, Texas.

OIL LEASES on Isthmus of Tehuantepec, Mexico, at very reasonable prices. This district is considered as the Oil Reserve of Mexico, and produces high gravity oil 34 degrees with paraffin base. Good railroads and deep rivers traverse this region, affording unexcelled facilities for transportation. Inquiries solicited. A. J. Rivas, la Iturbide No. 7, Mexico, D. F.

FOR SALE—At bargain prices, oil and gas leases, production and royalties in the Kentucky shallow fields. For full particulars and maps, address W. P. Harley, Bowling Green, Ky.

COLORADO NEW MEXICO
I am scout and geologist for large operating company, can secure for you, direct from owners, best leases and royalty on good structures where you will get action. If interested write. Geologist, 824 West Abirendo St., Pueblo, Colo.

PARTNER WANTED with capital to help me develop my proven leases in "World's Greatest Shallow Oil Field," Texas. Have some production on lease now. Would consider forming company. Full data on request to responsible parties. References exchanged. Box 124, Cisco, Tex.

FOR SALE
One Hundred Forty acres oil and coal land
Gibson County, Princeton, Ind.
Located 2½ miles from Princeton, all under cultivation, good improvements, spring water, wells on farm producing 75 barrels per month, 20 years old—depth 850 to 900 feet—initial production 15 barrels. Plenty of good locations for new wells. Will sell this land including lease of 40 acres adjoining with one well producing, all coal and oil rights included. Price $250 per acre, for the 140. Gas for pumping wells.
Frank M. Harris
Princeton, Indiana

WILL SELL all or half of 125-acre lease, Kettle Creek, Cumberland County, Kentucky. Title guaranteed. One well producing; best equipment; Raydure well on Blythe farm, Cave sand, less than 400 feet from line. Two offsets to drill. Good proposition to responsible parties. Investigate. Address, 109 West Hieman Street, Winchester, Ky.

WESTERN KANSAS WILDCATS—Will trade acreage for casing, tools, rigs, 6" Ideal irons, trucks, and for acreage favorably situated near other drilling wells. Our wells on structure which will stand exacting check. Quick action necessary. Box A-422, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—Oil leases and royalties. New developing field. Five wells going down. Kingfisher and Logan Counties. H. M. Godfrey, Crescent, Oklahoma.

25 CENTS per line first insertion; 15c per line each additional insertion. Cash in advance.

CLASSIFIED WANTS

MAIL your advertisement now. It will be published next week. Cash with order.

LEASES—PRODUCTION

REAGAN COUNTY oil fields—Sacrifice permit on Section 18, Block 46, Crockett County, Texas. $1.00 cash or trade. TRH, 4929 Victor St., Dallas, Tex.

BALCONES FAULT LEASES — 250 acres Guadalupe, $2 acre; 92 acres east Bexar, $1.75; 350 Karnes, 75 cents. List map R. E. Welden, 309 Mebane St., San Antonio, Tex.

FOR SALE—200-acre lease, four wells, near Albany, Ind. Production 200 bbls. month. Fully equipped, all new, closing estate, sacrifice. For further particulars address Chas. J. Metz, 1756 Mohawk St., Chicago, Ill.

NINETY THOUSAND acre ranch fenced and watered, near center Brewster County, Pennsylvania formation; see Geological Map of Texas, price $3.00 per acre in fee, giving all oil rights, good geologist reports. Box 126, Alpine, Tex.

OKLAHOMA new commercial leases near production and drilling wells priced to sell. Maps and prices on request. 801 Braniff Bldg., Oklahoma City, Okla.

GUADALUPE COUNTY LEASES

$3 AN ACRE

Leases between Seguin and Cibilo River, in Gudalupe County, Texas, where dozens of the largest companies in the United States hold leases, and where several tests are soon to be drilled, can be had today for $3 an acre. Get particulars.

We also have leases along Marathon Fold and Balcones Fault from 10 cents an acre up. Here are a few of them:

Reagan County	$3.50 an acre
Pecos County	1.00 an acre
Medina County	50c an acre
Crockett County	2.00 an acre
Crane County	1.00 an acre
Gillespie County	10c an acre

30 other counties.

Free map of Texas, showing the Marathon Fold and Balcones Fault is given with each inquiry. Write today for our latest list of bargain leases in Texas and free map. No obligation.

GULF REALTY CO.
291 Bedell Bldg. San Antonio, Texas

NEW MEXICO

Best structure in New Mexico. Highest gravity; lowest depth; easy drilling every month in the year. Have 12,000 acres all on structure S. E. Gallup. Will lease all or part to responsible person or firm who will drill. D. P. Gatchel, 743 Webster Bldg., Chicago, Ill.

BEST OFFER DRILLS 300-acre lease, proven field, in Calcasieu Parish, La.

C. O. Cook, Jennings, La.

ROYALTIES—in Routt and Moffat Counties, northwestern Colorado. Buy now and get in early on this important field. F. W. Thomas & Co., Mount Harris, Colo.

I HAVE some desirable leases on a big structure in Eastern Kentucky at $1.00 per acre, also coal land, timber tracts and producing properties. E. D. Watkins, Oil Producer, Irvine, Ky.

200 ACRES near "Coleman" well, Montgomery County, Kansas, in Section 31-32-15e, known as "De Mott" farm; three Bartlesville sand producers, fully equipped on line. Will sell all or part or lease for test to Wilcox sand. P. H. Ball, Box 251, Independence, Kans.

FOR SALE—Close-in royalty to Cromwell Pool. Also close-in lease to new Russell County, Kansas, Pool. Box A-421, The Oil and Gas Journal, Tulsa, Okla.

LEASES—PRODUCTION

WE ARE in market to purchase producing royalties in blocks from twenty-five to fifty thousand dollars cash. Box A-427, The Oil and Gas Journal, Tulsa, Okla.

ONE OF the best tracts in the Gulf Coast. It is the north flank of a known dome and resembles Abrams at West Columbia. It is located 5 miles south of El Campo, Texas. A good offer will take part of the east half of the NW quarter of Section 52. Address George Bauer, 1011 Chenevert Street, Houston, Texas.

TEXAS OIL LEASES in Caldwell and Bastrop Counties comprising 17 separate parcels, aggregating about 2,200 acres for quick sale. Leases four years to run. No reasonable offer refused. These leases situated about 6 to 7 miles from Luling Field. Address, Box A-412, care The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

WANTED—"Live wire" Mid-Continent representative. Prefer engineer or salesman now covering the territory who can handle our attractive proposition with present line. Address Box A-401, care The Oil and Gas Journal, Tulsa, Okla.

SUPERINTENDENTS, engineers, executives, now earning $3,000 to $25,000, will find our individual, confidential service a dignified and effective medium to make desired connections. Personally conducted by Mr. Jacob Penn, the eminent employment authority, known to leading business men throughout America. Not employment agency. Inquiries solicited only from persons with records of successful performance and stability. Jacob Penn, Inc., 305 Broadway, New York.

AUTOMOTIVE
MALE HELP WANTED

Wanted, experienced superintendent with sufficient executive ability and mechanical knowledge to take full charge of oil company garage and transportation departments.

In answering give references, experience, training and salary expected. All replies will be held strictly confidential. If satisfactory, permanent position with old established oil company.

Box A-425, The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED

ACCOUNTANT with a number of years experience in oil accounting, thoroughly familiar with the producing, refining, pipe lining and selling of oil. Wants to make a connection with an oil company in need of the services of a young man qualified to handle any work that presents itself in an oil office. Box A-437, The Oil and Gas Journal, Tulsa, Okla.

TELEGRAPH ENGINEER with wide experience telegraph, telephone and general electrical work, now employed in an engineering and supervisory capacity, wants similar work with oil corporation. Highest references. Address E. R. Wakefield, 300 Chamber Commerce, Denver, Colo.

LIVE SALES REPRESENTATIVE wants connection with well established manufacturer. Has had twelve years successful selling experience in Mid-Continent and Coastal Oil Fields. Wide personal acquaintance in refinery and manufacturers of oil field equipment. Prefer engineering or steel line. Engineering and Metallurgical experience. Have complete office and addressograph list of all refineries. Best references. Address C. B. (Boots) Kennedye, 2024 Railway Exchange Building, St. Louis, Mo.

LIGHT OIL MAN — Refinery man with 10 years' experience, from loading rack to general superintendent, wants good connection. Practical man. Address Box A-400, care The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED—Refinery superintendent, 18 years experience, will go anywhere. Address Box A-410, care The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED

POSITION WANTED by thoroughly competent accountant who knows the oil business and who is not afraid of work. Employed now by large oil company but desires to make a change. Box A-423, The Oil and Gas Journal, Tulsa, Okla.

WANTED INVENTORY WORK

15 years' experience with receivers, auditors, oil and gas companies, and supply houses. Would prefer steady work with some large company, but will take temporary work. Just finished inventory for receiver for Constantin Oil & Gas Co. Other references furnished. E. O. Mullin, 114 East Sixteenth St., Tulsa, Okla. Phone Osage 5694.

WANTED

WANTED—Party to furnish heavy rotary rig to drill on three hundred acres in semi-proven territory. Edge well produces forty-two gravity oil. For full information write Box 408, Wichita Falls, Tex.

WILL BUY used National or Parkersburg drilling machine. Write description, age of machine, and present location. Address 412 Central National Bank Bldg., Tulsa, Okla.

WANTED — Block of securities to market on commission, by reliable house. Money should be for development. Brokers, U. S. Realty Bldg., Suite 512, New York City, N. Y.

WANTED — Machine drilling up to 2,000 feet for cash, in Wagoner, Tulsa or Rogers Counties or Montgomery County, Kansas, preferred. P. O. Box 416, Wagoner, Okla.

WANTED — Parties to take interest drilling wildcat wells and acreage. Geological report, Archer, Young, Clay, Baylor and Panhandle. A. G. Holmes, 1109 City National Bank, Wichita Falls, Tex.

WANTED—Producing royalties, Oklahoma and Kansas. Give full details. P. O. Box 502, Independence, Kans.

WANTED—No. 27, 28 or 30 Star Machine without tools or boiler. E. A. Keith, Box 332, Martinsville, Illinois.

WANTED to interest capital in a real oil proposition. Write us for information. References, Bradstreets, Banks and Supply Houses. Johnston Drilling Co., Inc., El Dorado, Ark.

BUSINESS OPPORTUNITY

CAPITAL SEEKERS confronted with difficult financing problems should consult Amster Leonard, First Nat'l Bank Bldg., Chicago, Ill.

ACCOUNTANT—Experienced in oil work desired for Secretary-Treasurer of company being organized by reliable parties; reasonable investment required for interest in company. Address Box A-391, care The Oil and Gas Journal, Tulsa, Okla.

THE MEXICO OF TODAY

An Illustrated Monthly. Devoted to Trade, Travel, Finance, Mines, Oil, Minerals. Member Mexican Chamber of Commerce of U. S. A. Published at Houston, Tex. The American Mexican Mart and Caribbean Trade Center. Subscriptions $1.50 yearly. The Mexico of Today, 1114 Franklin St., Houston, Tex.

FOR SALE

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OIL MAN, do you need a telephone at the well you are drilling? We can save you money on the building of your telephone and electric lines. Name the town and distance and we will be glad to submit our estimate on the complete installations. We are equipped and have the experience on telephone, electric and telegraph lines.

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HIGH LINE CONSTRUCTION CO.

805 Mayo Bldg.

Tulsa, Okla. Phone Cedar 2551

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FOR SALE—One Booster Station complete with building, A-1 condition, $800; one loading rack pump, A-1 condition, $300. Box 82 or phone 105, Morris, Okla.

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INCORPORATE—DELAWARE
Cost $67 up to $100,000 authorized capital. F. L. Mettler, 832 Market St., Wilmington, Del.

CHEMISTS

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Additional Classified Wants on Page 226

Edward Valves for Oil Refineries

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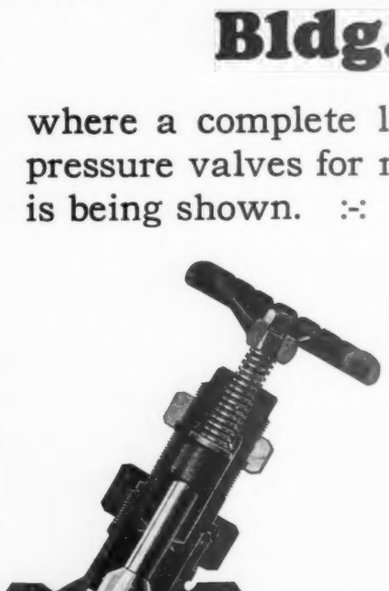

Globe No. 682

Angle No. 683

A new catalog for refiners has just been published— write for your copy.

THE EDWARD VALVE & MFG. CO.
East Chicago, Indiana

CANADIAN FIELDS

(Continued from Page 53)

Section 7-20-2w-5, is now down 3,670 feet and drilling steadily. About three weeks ago an additional flow of 1,500,000 feet a day of gas was struck; and about 20 feet below this gas sand a small flow of light oil, about a barrel a day, was encountered in another sand. The drillers are going on down through this with a 6-inch hole to make a thorough test of the area. In the foothills west of Edmonton, Coalspur No. 2 test is down 1,443 feet. At 1,435 feet of drill passed through a gas sand which is supplying sufficient gas for fuel to operate the outfit.

Fort Norman

No further word has been received from the Far North since the summer, at which time work had just been started on a new test close to the discovery well and about 53 miles below Fort Norman. Further word is expected from this field early in October.

In the Sweetgrass Field, east of Coutts, Canadian Oil & Refining Co. (Rogers-Imperial) Section 29-1-11w-4 is shut down at about 2,625 feet waiting for small casing which is now reported en route to the well.

In the Montana Field, Whitman-Corey-Sunburst No. 2, Section 4-32-2w is reported to be making 2,000 bbls. a day, with no water. L. P. ("Tip") O'Neill of Sunburst, is enlarging his plant, and will construct a 4-inch line to the Shoshone group of wells. This plant is shipping considerable "tops" to the Lethbridge refinery, the fuel oil being taken largely by the Great Northern railway.

The Alberta Refining Co. of Coutts, Alta., as a shareholders' meeting held recently, decided to double the capacity of its refinery plant at Coutts and install 15,000 bbls. additional storage. The company is increasing its capitalization from $25,000 to $50,000 and is giving its shareholders a 25 per cent stock dividend. J. Falkner, of Long Beach, Cal., formerly with the Pan-American Oil Co., took charge recently of the Canadian Oil & Refining Co. refinery at Lethbridge, Alta. A. G. Baalim, of Lethbridge, is building an oil warehouse and planning to construct a small refining plant to operate on the "tops" of the International refinery at Sunburst. H. H. Beagle and C. F. Sedgwick of Lethbridge are planning to build a small refining plant at Nelson, B. C., to operate on Kevin-Sunburst crude.

The Canadian Western Natural Gas Co. is applying to the Alberta Public Utilities Commission for an increase of the gas rate for Lethbridge from 35 cents to 50 cents, net. The hearing of the application opened at Calgary on September 30. A number of Lethbridge men are interested in a project to pipe natural gas from the Canadian Oil & Refining Co.'s gasser east of Coutts to Lethbridge. The project calls for a 90-mile pipe line.

In the Ontario Fields, the Mulberry Creek Oil Co. which has been drilling for oil on Bruce Peninsula, near Lion's Head, has ceased work, and dissolved. After drilling to 1,700 feet the test finished a dry hole.

ROCKY MOUNTAIN AREA

(Continued from Page 188)

feet estimated at 14 bbls. of crude and 1,000,000 feet of gas daily.

Rawlins, Wyo. is located upon an oil structure, according to recent reports. E. R. Good and others of the Lost Soldier Field have secured leases adjoining the city limits and are preparing to drill a well on the outskirts of the town.

The Producers & Refiners, on Section 33-25-87, on the Mahoney Dome, in the Lost Soldier Field, found a good showing of oil at 2,170 feet in the No. 2 well that is to be tested for production. At present the well is considered good for 25 bbls.

Salt Creek Contract

The contract for Section 36-40-79, in the heart of the Salt Creek Field was automatically renewed on October 1, between the State of Wyoming and the Midwest Refining Co. The contract was made in February, 1923, when the North & South Railroad was proposed to be built to the field and the Haskell interests of Oklahoma tried to have the State lease this section to them for production purposes. The Midwest bid $5,000,000 cash for the section and also made another bid that contained a royalty clause of 65 per cent of the oil to go to the State. The Board of State Lands decided on the bid containing the 65 per cent royalty as most remunerative and it was accepted. The Midwest lease was to expire October 1 and from now on the State will receive a royalty of 65 per cent of all the oil from Section 36 which is expected to produce about 1,000,000 bbls. during the coming year, which will bring the contract price of $1.50 per barrel, making a nice income for Wyoming from this one section.

While the State has but two sections in Salt Creek that are productive, the Federal Government has practically all the rest of the field and the Government's royalty from Wyoming oil fields for the last fiscal year ending last June was $12,270,430.

The Midwest Refining Co. completed 10 wells in the Salt Creek Field the past week, through its subsidiary companies. The Salt Creek Consolidated Oil Co. found a producer good for 90 bbls. on Section 31-40-78 at 2,405 feet and another well that made 1,068 bbls. initial production on Section 31-40-78 from 1,100 feet. On the same section, the same company completed a small producer that will be shot at 2,495 feet.

The Mountain & Gulf Oil Co. completed an average producer on Section 8-39-78 that will be shot at 2,208 feet and on Section 6-39-78 found a producer at 1,550 feet in the shale that will make 30 bbls. On Section 31-40-78 the same firm has a second Wall Creek producer of 25 bbls. at 2,295 feet.

The Wyoming Associated Oil Co. on Section 30-40-78, found a small well at 2,117 feet and another of the same kind on Section 24-40-79 at 1,880 feet. The same firm also has a first Wall Creek sand well on Section 14-40-79 at 1,370 feet that will make 40 bbls.

The Marine Oil Co. completed a good producer on Section 16-39-78 and shot at 2,845 feet, but the hole bridged and the well has not been placed on production as yet. The same company is drilling on two wells, one on Section 20-39-78 which is at 2,746 feet and the other hole is at 1,979 feet, on Section 18-40-78. The third well of the Marine drilling in the Pilot Butte Field in Fremont County is at 500 feet.

Runs for the Week

Salt Creek	71,900
Teapot	2,450
Big Muddy	3,750
Grass Creek	2,700
Elk Basin	500
Greybull	30
Rock River	3,350
Rex Lake	350
Lance Creek	1,770
Notches	300
Poison Spider	670
Osage	350
Hamilton Dome	570
Mule Creek	700
Lander	270
Byron	90
Pilot Butte	4,800
Lost Soldier	120
Ferris	1,770
Craig	1,700
Cat Creek	5,150
Sunburst	850
Miscellaneous	
Total	107,900

GULF PORT SHIPMENTS LESS IN SEPTEMBER

HOUSTON, Tex., Oct. 6.—Incomplete reports of shipments of refinery products and crude by water from Gulf ports during September indicate there will be a decrease compared with August shipments.

The following table compiled from reports received to date shows the comparisons between September and August, including both refined and crude:

Company—	September Bbls.	August Bbls.
The Texas Co.	1,754,610	2,266,842
Gulf Ref. Co.	1,701,948	1,833,545
Sun Co.	301,082	*268,700
Humble Oil & Ref.	1,860,200	1,567,870
Totals	5,617,840	5,936,457

*Crude alone.

Bureau of Standards Petroleum Work

Investigations in Progress of Immediate Interest to Oil Men Detailed in Address Before International Petroleum Congress

By T. S. Sligh
U. S. Bureau of Standards

In the production and distribution of petroleum products, certain universally recognized standards are necessary that a definite commodity may be produced and delivered.

The bureau is prepared to test and certify volumetric glass ware, hydrometers, thermometers, pyrometers and viscometers. Standard samples of sucrose, benzoic acid and naphthalene for the rating of the combustion calorimeters; standard samples of known melting point for use in the standardization of pyrometers, and samples of oils of known viscosity are available for distribution.

The establishment, maintenance and distribution of the standard scale of temperature has involved a great deal of fundamental research in the determination of the various fixed points. The testing, calibration and certification of master standards by reference to which the thermometers and pyrometers used in industrial work are calibrated requires the services of a considerable staff.

The testing and certification of viscometer tubes is of direct interest to you. The producers and distributors of lubricating oils have demanded reproducible measurements of viscosity. The essential requirement is not so much absolute accuracy as reproducibility of results throughout the country as a stable basis for specification, purchase and sale.

The bureau has worked in cooperation with the American Petroleum Institute and the American Society for Testing Materials. Although the problem has been complicated by a number of factors and the way of the standardizing laboratory has not been easy, viscometer tubes can now be rated by comparison with master tubes and oils of known viscosity and certified to a degree of precision which will assure all of the uniformity and precision which the standard method of test is capable of affording.

The viscosity laboratory is now engaged in the rating of tubes, a study of the factors affecting the accuracy and reproducibility of viscometric measurements and in research connected with the measurement of the viscosity and plasticity of various materials.

Soil Corrosion

Several divisions of the bureau already have under way laboratory studies on the corrosion of metals, protecting paints, and some other materials but it appeared worth while to make an actual field test of the corrosion which may occur in different soils. With the cooperation of the Bureau of Soils of the Department of Agriculture, locations were chosen in all parts of the country representing types of soils in which pipes are likely to be buried. With the cooperation of manufacturers samples representing the important materials which largely used in pipes and cables were obtained, and several sets of these samples (comprising over 13,000 specimens) were buried in each of 46 locations scattered throughout the country from coast to coast.

At intervals of two to three years a part of the samples from each place will be taken up and brought in for examination. The oil loss of weight will be determined as well as depth of pits, general character of the corrosion and the chemical analysis of both soil and pipe material. The first lot of samples including about 900 specimens has already been dug up. These indicate that in some locations, especially in the South and Southwest, initial corrosion of iron and steel is rapid. Lead also was found to be seriously corroded in a few localities. It is too soon yet to make any general statements regarding the relative merits of any materials, but the bureau believes that in a few years this investigation should produce results which will be worth millions of dollars to those industries which use pipes and cables.

Petroleum Oil Tables

The standardization program of the petroleum oil industry involves several projects in which the Bureau of Standards has taken an active part. Among these may be mentioned the recent adoption of National Standard Petroleum Oil Tables, published as bureau circular No. 154.

Prior to 1921 there were in use in the oil industry two so-called Baume' scales for petroleum oils, one based on the modulus 140, and the other on the modulus 141.5. The use of these two scales led to much confusion.

After several years of profitless discussion and the continued use of the two scales it became evident to all that the adoption and exclusive use of either scale would be preferable to the continued use of both.

After careful consideration by the oil industry, the Bureau of Mines and the Bureau of Standards, it was agreed that in view of the fact that there appeared to be in actual use a greater number of hydrometers based on the modulus 141.5 than on the modulus 140, the industry would be least disturbed by the adoption of the former. It was accordingly recommended for adoption, and new tables on that basis were prepared by the Bureau of Standards. These have recently been published as circular No. 154.

The tables are based upon an extensive research carried out by the bureau and published as Technologic paper No. 77, supplemented by additional observations necessary adequately to cover the specified gravity and temperature ranges recommended.

The bureau now tests and certifies oil hydrometers on the basis of the new scale, designated as the American Petroleum Institute. of A. P. I. scale, and having the modulus 141.5.

The original Baume' scale, modulus 140, is continued for use with other liquids lighter than water.

Standardization of Screw Threads

Another standardization project being fostered by the American Petroleum Institute, and in which the bureau has taken part, is the standardization of threaded joints on well casing.

Through the cooperative efforts of the bureau, the National Screw Thread Commission, the Standardization Committee of the A. P. I., and manufacturers of pipe and pipe thread gages, some progress has already bene made in the tentative adoption of standard sizes of pipe, standard pitches, tapers, and lengths of engagement. This is a project of major importance, involving millions of dollars a year, and the possible benefits to be derived from standardization, in the form of reduced cost of manufacture, increased economy and safety of use, are correspondingly great. This project should have the full support of standardizing bodies, and manufacturers and users of threaded casing.

Production of Hydrogen

The bureau has been greatly interested in the study of methods for the production of hydrogen for ballons and dirigibles.

Making use of the facilities of a plant at Trenton, N. J., a very complete study was made of the oil-cracking process for the production of hydrogen. It was found not only that the process is perfectly feasible, but one of the cheapest. It is especially well adapted to the intermittent production of hydrogen on a large scale, the operating condition most frequently met in airship work.

Fuel oil is decomposed by contact with highly heated coke. When the temperature drops to a point where the decomposition becomes too incomplete, the coke is again heated by the air blast. The carbon deposited upon it during the decomposition of the oil is burned off, and thus furnishes a large part of the fuel required in the cracking process.

A plant capable of producing 120,000 feet of hydrogen per day was designed by the bureau for installation at Scott Field.

Fuel Investigations

Early in 1917 we were advised by the French and British that airplane engines would not develop their full power at altitude on gasoline having an end point above about 250 degrees F. This recommendation was based on the rather meagre data obtainable in actual flight tests.

To study the performance to be expected of fuels and engines in airplane service, an altitude chamber was constructed at the bureau in which the temperature and pressure conditions could be controlled to stimulate those obtaining at all altitudes to which planes could be flown.

Exhaustive tests indicated that the extremely volatile fuels recommended were not necessarily the best and information was secured which made possible the specification of a suitable aviation gasoline of considerably lower volatility. This specification was used both in this country and abroad. This gasoline was in every respect as satisfactory as the lighter fuel and saved for other use many millions of gallons of motor gasoline which would necessarily have been rendered less useful by the removal of its more volatile constituents. This saving at a time when the world was on short rations as regards motor fuel, was of considerable importance.

Volatility of Motor Fuels

The work on aviation gasoline naturally led into a study of the proper fuels for automobile engines. There was a difference of opinion regarding the specifications for "good" gasoline. The automotive engineer contended that the heavier fuels coming on the market as the natural results of a demand for more and still more motor fuel contained constituents which not only did not burn in the engine but were definitely harmful, while the petroleum engineer pointed out that the public seemed to be using that fuel without much trouble. Finally the two industries acting jointly through the American Petroleum Institute, the Society of Automotive Engineers, and the National Automobile Chamber of Commerce, asked the bureau to cooperate in ascertaining some of the facts.

This work has included road tests with cars specially equipped to yield the required data, observations on fleets of commercially operated vehicles, and laboratory engine tests. The results to date indicate that even the least volatile components of the heavy fuels do burn and give about the same mileage per gallon as the more volatile ones. However, the heavier fuels do under ordinary operating conditions give increased dilution of the crank case oil, thus necessitating more frequent replacement and also present some difficulties in cold weather starting.

The economic gain to be realized in cutting deeper into the crude for motor fuels and thus utilizing a larger percentage for this high grade service, seems to justify further study of this subject.

Fuel "Knock" and Preignition

One way of getting more energy out of fuel is by utilizing it in an engine having a high compression ratio, however, here what is known as "fuel knock" which may be either preignition or detonation, is encountered.

A great deal of work has been done on this subject and much has been learned regarding the properties of various types of fuel as regards tendency to knock. It is generally believed that the rate of propagation of the explosion in the mixture is one of the controlling factors of detonation. The bureau is now carrying on a study of the rates of propagation of the explosion in various gaseous mixtures by a method which consists in igniting the mixture in a soap bubble and photographing the progress of the combustion. By the use of a bubble the effect of the proximity of restraining walls upon the combustion is suppressed and thus one variable factor is eliminated.

Hundreds of satisfactory photographs have been obtained and their analysis points to conclusions of considerable importance.

A method of testing fuels and fuel dopes in an engine has been devised and such tests can now be be made upon request, and payment of the required fee.

Crank Case Contamination

The work on the contamination of crank case oils by fuel diluent and other

(Continued on Page 219)

KING PETROLEUM

JOHN B. MEANS

Oil Securities Practically Unchanged

Accumulation Rumored in Several Issues but Gasoline Reduction Revived Discussion of Unfavorable Side of Situation

By N. O. Fanning
Room 543, No. 30 Church St., New York

NEW YORK, Oct. 4. — Oil securities were unchanged during the past week. Although accumulation was rumored in several issues, the reduction in gasoline prices on the Atlantic Seaboard was of such proportions as to call attention to the unfavorable side of the oil situation.

Students of the situation claim the oil situation has not yet reached bottom. They say stocks of crude are much bigger now than a year ago, and production is maintaining an even keel at a level which will not allow a withdrawal upon stocks for some time. Barring a sensational decline in production, they look for still lower prices this winter. They do not believe there will be any real foundation for optimism until stocks of crude oil have been reduced by at least 50,000,000 barrels.

Of course this is probably an extreme view of the situation and does not take into account possible unforeseen developments.

Eureka Pipe Line Breaks

The Eureka Pipe Line Co., one of the Standard Oil pipe line companies operating in the eastern field, declared a quarterly dividend of $1 per share, payable November 1 to stockholders of record October 15. This is at the rate of $4 per year, compared with $8 previously paid. News of the cut of 50 per cent in the dividend rate was followed by a break of 16 points in the stock to a new low of 74. The company reports net profit for the three months ended August 31, 1924, of $84,692 after charges.

Vacuum Oil at New High

Vacuum Oil continues to be the real feature of the oil group. The stock made a new high Thursday of 73¾ on a large turnover. The fact that Vacuum Oil deals almost exclusively in lubricating oils, the price of which has been stable during the last few years, is being more generally recognized. Last year Vacuum Oil earned approximately $5.41 per share on the common. This year its earnings are expected to approach $10 per share if prices of lubricants continue at current levels.

Pierce Petroleum Listed

Stock of the Pierce Petroleum Corp. was listed on the New York Stock Exchange during the week. It sells around $5 per share. A banking group recently offered for public subscription at $7 per share an issue of 1,348,500 shares of capital stock of the Pierce Petroleum Corp. The corporation has an authorized capital of 2,500,000 shares of stock of no par value and also has authorized $1,500,000 10-year 8 per cent sinking fund debenture bonds, due 1931, of the Pierce Oil Corp.

Pierce Petroleum Corp. was formed last spring to acquire the assets and business of the Pierce Oil Corp.

The statement of Pierce Oil Corp., Pierce Petroleum Corp. and subsidiary companies for seven months ended July 31, 1924, shows net profit of $233,227 after interest, depreciation, etc.

Consolidated income account for seven months ended July 31, 1924, follows:

Gross profit	$4,428,603
Expenses	3,490,380
Interest, etc.	336,450
Depreciation	368,546
Net profit	$233,227

Consolidated balance sheet of Pierce Oil Corp., Pierce Petroleum Corp. and subsidiary companies as of July 31, 1924, follows:

Assets: Cash, $3,822,402; accounts and notes receivable, $1,358,393; inventories, $6,208,074; deferred charges, $84,149; reorganization expenses, $173,468; capital assets, exclusive of oil lands and leases, $14,248,302; total, $25,894,788.

Liabilities: Accounts payable, $1,541,205; trade acceptances, $554,524; notes payable, $18,500; special reserves for claims in litigation or contested and for Federal taxes for previous years, $2,383,951; funded debt, $1,500,000; capital and initial surplus (represented by 2,500,000 shares no par value) $19,896,608; total, $25,894,788.

The Pierce Oil Corp. has outstanding in hands of public 148.110 shares of preferred stock, par $100 and 1,184,880 shares of common, par $25, against which it now holds as its sole asset 1,103,679 shares of Pierce Petroleum Corp. stock of no par value.

The above operating result was obtained under the bad credit conditions which existed prior to the new financing of July 28, 1924. This financing, which amounted to about $6,800,000, eliminated practically all current indebtedness, interest on which during the seven months under review amounted to over $200,000.

Union Tank Car

Stock of the Union Tank Car Co. continued to fluctuate between 120 and 130 during the past week. These fluctuations have given rise to many rumors, the latest to the effect that a stock dividend is contemplated.

Although Union Tank Car Co.s 1923 earnings were at the rate of more than $18 per share on the common stock, the company reported net of only $3.79 per share for the first half of 1924. This has dampened anticipation of an increase in the dividend rate above the current $5 per annum lvel. That the company is in a position to declare a stock dividend is shown by the fact that the company's surplus at the close of 1923 equaled more than $100 per share, which would evidently permit a stock dividend of as much as 100 per cent. But a stock dividend would be considered unlikely unless dividends justified an additional payment in the way of dividends on the new stock and at the same time allow substantial additions to the surplus account.

President Scardi, of the Union Tank Car Co., has denied there is any discussion by the board of directors. In fact, the long standing conservatism in management of the company's affairs would indicate nothing either in the way of increased dividends or a stock dividend will be seriously considered this year, although the company's finances doubtless would permit it.

Dividends

The Salt Creek Producers Association has declared an extra dividend of 30 cents per share and regular dividend of 20 cents, both payable November 1 to stockholders of record October 15.

The Woodley Petroleum Co. has declared a dividend of 50 cents per share, payable December 20 to stockholders of record December 15. In the preceding quarter a dividend of 30 cents and an extra of 20 cents were paid.

Sinclair Consolidated

Sinclair Consolidated Oil Corp. stock declined to 15½ during the week, which compares with the year's low of 15. The preferred stock sold as low as 80.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

No.	Stock—	Par	Dividend Rate	Clos. Quotations Oct. 6	Sept. 27	1924 High	1924 Low	1923 High	1923 Low
1.	American Republics	..	..	*36	*36	43	25	..	..
2.	Associated Oil	25	6	27⅞	28¼	34⅝	27⅝	29¼	29½
3.	Atlantic Ref. com.	100	..	84	87	140½	78½	160	98¾
4	Barnsdall "A"	25	..	17½	17½	21⅝	14	35	9⅞
5.	California Pet., com.	25	7	21⅞	21⅝	29	21⅝	28½	17¼
6.	Cosden & Co., com.	..	..	23¼	23⅛	40⅛	23⅛	62¼	22¾
7.	General Am. Tank.	..	†3	45½	44⅝	49¼	35½	71⅞	40
8.	General Asphalt	100	..	41⅛	41½	49	31⅝	64	23
9.	General Petroleum	25	8	40⅜	40¼	45	38⅝	..	..
10.	Houston Oil	100	..	69	71½	82½	61	78	40⅜
11.	Independent Oil & Gas	10	..	6½	5⅝	9¼	5⅝	11¼	3⅝
12.	Indian Refining	10	..	5¼	6	7	3⅜	8½	4
13.	Invincible Oil	50	..	12⅞	13¼	15⅞	11⅝	19¼	7⅛
14.	Maracaibo	..	..	26	27½	37½	25⅞	28¼	16
15.	Marland	..	..	33	34	42	29	59⅝	18½
16.	Mexican Seaboard	..	..	22⅝	21⅞	25¾	14⅛	19⅝	5⅝
17.	Middle States Oil	10	..	*1	1⅜	6⅞	1	12¼	3½
18.	National Supply	50	6	56½	*59	72½	55¼	68	54
19.	Pacific Oil	50	†2	47	46⅞	58¼	45	52⅛	31½
20.	Pan-American, com.	20	16	52¼	52⅝	61¼	44¼	93½	53
21.	Panhandle P. & R.	..	..	*2	*1	4½	1⅝	6¼	1¼
22.	Phillips Petroleum	..	†2	30½	31⅝	42¼	28½	69⅝	19⅝
23.	Producers & Refiners	50	..	25½	25¼	43½	22⅝	58¼	17½
24.	Pure Oil, com.	25	6	22½	22½	26⅝	20	32	16¼
25.	Royal Dutch, N. Y., sh.	13.40	2.62	40⅞	41	59¾	41½	55⅛	40⅛
26.	Shell Transport	10	x92½	*35	*35	41½	33	41¼	29½
27.	Shell Union, com.	..	†1	16⅞	16½	20¼	15⅝	19¼	12⅝
28.	Simms Petroleum	10	..	14½	14	14⅞	10⅜	16⅝	6½
29.	Sinclair Cons. com.	..	..	15½	16	27½	15	39⅝	16
30.	Skelly Oil	25	..	17⅝	17⅞	29	17½	35	12½
31.	Standard of California	25	8	56⅝	57¼	68½	55½	84½	47¼
32.	Standard Oil of N. J.	25	4	35½	34⅝	42¼	33	44¼	30⅞
33.	Standard of N. J., pfd.	100	7	*117¼	117⅞	118⅝	115⅝	118¼	114⅝
34.	Superior Oil	..	..	4⅞	4⅞	8¼	2⅝	6¾	2
35.	The Texas Co.	25	12	40	40	45⅝	37⅝	52⅞	34⅝
36.	Texas Pac. Coal & Oil	10	..	8⅞	8⅝	15¼	8¼	24⅝	5⅛
37.	Tide Water Oil	100	4	*120	120	151	118¼	144	94
38.	Transcontinental	..	..	4⅛	4⅛	6¼	3⅜	14⅛	1¼
39.	Union Tank, com.	100	5	121	126½	132⅝	94	114	106
40.	White Eagle Oil & Ref.	..	2¼	23⅜	24½	29⅝	23⅛	30⅝	20⅛
	Standard Oil Stocks								
41.	Anglo-American Oil	£1	25	15	14⅞	18	14⅝	19⅝	13½
42.	Borne Scrymser	100	12	*205	*212	264	150	153	110
43.	Buckeye Pipe Line	50	14	56½	*59	85½	51	94	57½
44.	Chesebrough Mfg., com.	25	14	*48	*48	43⅝	29½	340	205
45.	Continental Oil	25	8	*42	*42	54⅞	42½	50	32½
46.	Crescent Pipe Line	25	..	*11¼	*11	20	11¼	25	15
47.	Cumberland P. L.	100	10	*136	*135	148	109	117	80
48.	Eureka Pipe Line	100	8	*75	*91	105	74	117¼	87
49.	Galena Signal, com.	100	4	52½	*53	69⅝	55¼	78	55
50.	Humble Oil & Ref.	25	4.8	*36	*36	43⅝	36	41	28¼
51.	Illinois Pipe Line	100	12	*125	126½	161	123	171	115
52.	Imperial Oil, Ltd.	25	12	101½	102¼	119	99	123	92
53.	Indiana Pipe Line	50	8	70	74	100	66	103	81
54.	International Pet. Co.	100	x50	19	19⅝	22¼	16⅞	24⅜	13¼
55.	Magnolia Pet. Co.	100	4.6	*129	125	160	124	166	123
56.	National Transit	12.50	16	*21⅝	22⅜	25⅞	21¼	29	19½
57.	New York Transit	100	10	*60¼	*59	97	54½	138	70
58.	Northern Pipe Line	100	6	*75	*78	107½	73	111	96
59.	Ohio Oil Co.	25	9	60	61	79½	58	85¾	48¾
60.	Penn-Mex. Fuel	25	..	32	32½	45⅝	32½	45	10½
61.	Prairie Oil & Gas	100	8	206	207	269	194½	272	152
62.	Prairie Pipe Line	100	8	102	104	111	100	117	93
63.	Solar Refining Co.	100	15	*180	*178	225	170	213	161
64.	Southern Pipe Line	100	16	83½	88	100	86	116	87
65.	South Penn Oil	100	..	*132	*136	178	117	196	100
66.	South West Pa. Line	100	8	*70	75	89	76½	89	66
67.	Standard of Indiana	25	10	55⅞	55⅝	58⅜	54¼	69⅞	49¼
68.	Standard of Kansas	25	..	*32⅜	33¼	50⅛	32⅛	56¼	36½
69.	Standard of Kentucky	25	16	115½	116½	120	101	109½	76
70.	Standard of Nebraska	100	20	*233	232	256½	198	280	186
71.	Standard of New York	25	5.6	39	39⅛	48	37⅝	49⅝	35⅛
72.	Standard of Ohio, com.	100	10	315	295	336	277	320	270
73.	Swan & Finch, com.	100	..	*40	*40	81	34	38	21⅛
74.	Vacuum Oil	25	12	70⅝	69⅜	72¼	56½	55⅛	40
75.	Washington Oil	10	10	*30	*29	29	25	28	20¼
	Miscellaneous Stocks								
76.	Cities Service, bks. sh.	..	†21	*15	14⅛	16	13⅛	18½	12¾
77.	Cu. Oil Corp. of Pa.	25	6	*58¾	59⅛	65	56⅝	68¼	45¾
78.	Mutual Oil	5	10	10⅝	11	14	9⅝	..	..

*Bid, no sales. †In dollars. ‡The figures in this column are kept up to date as far as possible, but are not guaranteed. xCents per share.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Oct. 6	46.39	Aug. 30	47.59	July 28	47.86		
Sept. 27	46.70	Aug. 25	47.01	July 21	48.28		
Sept. 22	47.02	Aug. 18	47.85	July 14	46.96		
Sept. 15	47.41	Aug. 11	47.46	July 7	48.28		
Sept. 8	47.89	Aug. 4	49.71	June 30	47.69		

PAY $14,834 ROYALTY TO TEXAS UNIVERSITY

AUSTIN, Tex., Oct. 4.—During the month of September the Big Lake Oil Co. paid $14,834 to the University of Texas as royalty on oil produced on University land in Reagan County, by far the largest single month's remittance.

Under a ruling made by the Attorney General the royalty must go to the University permanent fund, and therefore cannot be used for the erection of buildings on the campus. H. A. Wroe of Austin, University regent, authorizes the statement that the regents will ask the next Legislature to amend the law so that oil royalties will go to the University available fund, instead of the permanent account, and in that way it can be used for new buildings to displace the half hundred frame shacks on the campus.

In September the total receipts from land sales and leases amounted to $218,499. Of that sum $125,889 went to the available school fund and $71,606 to the permanent school fund. The remainder was scattered in small amounts among the other special funds.

STONE CONTINUES PROBE

WASHINGTON, D. C., Oct. 7.—Attorney General Stone denies that the recent reduction in the price of gasoline was due largely to a federal investigation. He says that while the Department of Justice is working upon gasoline cases the investigation has not yet been completed. It is said that new prosecutions will be instituted when the investigation is finished and a report can be submitted to the Attorney General.

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Effective Safety Methods in Marketing

Safety Director of Standard Oil Company of Indiana Outlines Recommendations Based Upon Experience With That Company

By F. C. Singleton
Safety Director, Standard Oil Co. of Indiana

An efficient safety organization starts at the top; the general manager must do his part, and his part is to "make safety a necessary part of the sales organization," get back of it and keep back of it so actively that every employe will know just what the company proposes to do to help make the organization safe. The manager must convince the entire organization by visible signs, in the form of mechanical safeguards, improved machinery, modern fire-proof buildings, good lighting, good ventilation, adequate fire fighting apparatus, first-aid stations, etc., and by showing his employes that he is doing his full part before he can expect them to take safety seriously or give any genuine cooperation. It is especially important that the general manager bring his assistants to believe in safety just as they believe in sales promotion, and to encourage them to give it their wholehearted and intelligent cooperation. This can be brought about by exacting from these men exactly the same degree of attention to safety as is required in the case of production, by frequent conferences between this body and the safety director who will place before them the combined record of the entire sales division on accident prevention.

Safety Organization

What applies to these men will also apply to the district managers and their assistant: They must be the field marshals in the safety campaign, and by their own faith and enthusiasm they must win for it the respect and support of every employe in their division. If they treat it as a side issue, their employes will treat it likewise. Safety must be made a vital part of the entire sales department.

Field safety engineers should be installed who will carry on the work in the territory assigned. The safety director, who is the "central authority" and who shoulders the entire responsibility for accident prevention should train them and determine their duties. The field safety engineers should work directly under the safety director whose duty it is to formulate safety policies to be carried on by his assistants.

The following will suggest a few of the duties required of the field safety engineer:

(a) Check up unsafe practices, insanitary conditions, the use and need of safeguards, etc.
(b) Keep in touch with station agents, foremen and other department heads, and secure their cooperation by serving them.
(c) Recommend methods of safeguarding and follow-up installations.
(d) Check all specifications and drawings for new equipment, new installations, or repairs, to see that provision is made for safety.
(e) Get acquainted with all new employes, check their physical reports, and advise them of the safety work and their part in the program.
(f) Supervise bulletin board service, and other such service as pertains to safety.
(g) Supervise safety educational activities.
(h) Arrange program for safety meetings (to include both plant and court meetings).
(i) Investigate all accidents.
(j) Keep records and prepare reports on accident experience.

Fellowship, system, education and discipline are four necessary elements in safety. Each element has a direct bearing on the ultimate desired result, viz: to decrease accidents; to improve working conditions, and to increase efficiency through educational means.

Before outlining a suitable educational course in safety, it is first necessary to study and systematize the accident data of the particular company. These data, when systematized, will not only be suggestive in laying out an educational scheme, but will also be useful in later years for comparative purposes.

Educational work, to be received properly, and to have the right kind of cooperation given must also have a proper spirit of fellowship existing in the company.

Having established an educational course in safety, the work should be carried on systematically as part of the company's educational work, centralized under the direct supervision of the safety department. A definite schedule should exist and be strictly adhered to.

Safety education, to be effective, should be handled by a "Central Safety Committee" through which the employes are informed in regard to safe and efficient methods of operation. This committee should seek to secure the earnest and whole-hearted cooperation of all employes in preventing accidents. This Central Safety Committee in our organization is sometimes called a "Safety Court" and it includes the district manager, assistant manager, certain classification of station agents, equipment superintendents, construction engineers, garage and machine shop foremen, department heads, a selected number of workmen, and the field safety engineer. This committee or Safety Court should meet at a regular hour each week. If the sales organization is divided into a number of sales divisions, a committee or court should be established in each division.

Executive Interest

The reason for making these particular men members of this committee are: Because of their executive position, their ability to handle such matter as pertains to the promotion of safety, and service on this committee is the best—and sometimes the only—means of arousing and holding the interest of these men in safety and thus securing from each the necessary cooperation in his own department. Such interest is absolutely essential for maximum success, and can be secured only when each of these men is completely sold on the safety idea. Engineering revision will be applied to the problem of preventing accidents only in proportion to the degree to which the construction engineer is convinced of its necessity. Maintenance of equipment will be considered in its true relation to safety only when the equipment department, garage foreman or chief mechanic realizes the importance of safety in plant organization. Main and A station agents should be made to realize that hiring, placing and instruction of such men as warehouse men, tank truck drives, etc., have a distinct bearing on accident prevention.

The purchasing agent should understand the necessity for purchasing material according to definite specifications, and for requiring all manufacturers to incorporate in their machines every necessary provision for the safety of the operators. Department heads need conviction that supervision plays an important part in keeping down the number of accidents.

Give a workman some active part in safety work, some responsibility—and you will secure his interest. The one indispensable thing is that his superior shall believe in the committee idea and constantly encourage the men in their safety work.

When the workmen are given full opportunity to ascertain just how men are being injured in their own and other departments, they find out for themselves what percentage of the accidents can be prevented by the company and they will also learn what a large percentage of accidents can be eliminated by banishing ignorance and carelessness on the part of the workmen.

Central Committee

An effective central safety committee can handle many items of safety, and by making thorough investigations of all accidents, near accidents, unsafe conditions and unsafe practices will enable the district manager to make quick decisions in promoting safety work.

This committee should have authority to:

(a) Establish standards for safeguards.
(b) Review reports and recommendations of safety engineer, and other employes.
(c) See that tools and machines are kept in proper repair and adjustment.
(d) Inspect their own and other departments and render full report.
(e) Investigate all accidents and recommend methods of prevention.
(f) Keep closely in touch with other committees and their activities.

Each accident, regardless of its size or seriousness, should be carefully investigated by the "Central Safety Committee" to determine the mental attitude of the employe at the time of the accident and to secure the facts and circustances attendant to the incident. Each employe should be instructed to report any accident in which he becomes involved with all convenient speed to his immediate superior who, in turn, communicates with the safety engineer.

To encourage the employe to report all accidents promptly and accurately, two sets of standard forms should be prepared—one covering personal injury to the employe and the other covering property damage or personal injury to persons. On these forms questions are printed requesting general information covering the accident. Each foreman or supervisor should have these forms in his possession. By employing this method, a close check can be kept on all accidents occurring among the employes.

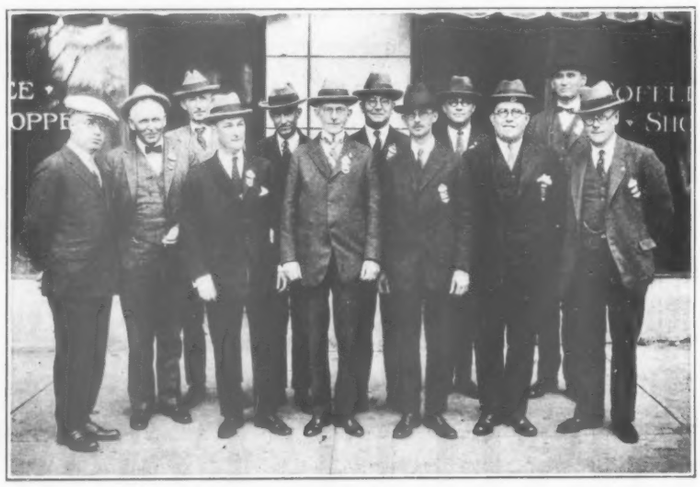
Truck Drivers

A somewhat different method can be employed in securing accurate information from motor truck drivers. Our plan is to supply each with a long tin tube in which the above mentioned forms are placed along with witness cards, pencil and tape measures. These tubes are known as accident tubes and are fastened in the cab of each motor truck. In case of an accident in which he is involved, the motor vehicle driver stops his vehicle as soon as possible; removes the accident tube from its holder; takes all necessary measurements with the tape measure; fills out his witness cards; then fills in the answers to the questions on the printed forms. He then reports the accident by telephone to his immediate superior, who then communicates with the safety engineer who takes charge of the accident.

A complete report of this accident should be compiled by the field safety engineer and presented to the Safety Court at its next meeting. The court informs itself from the report as to the general facts and then calls in the employe involved. He is questioned as to the details and informed as to what his conduct should have been under the circumstances. He is again asked to assist in preventing accidents. Repeated failure to observe rules and regulations may result in his discharge. Discipline, however, should not be exercised until all other measures have failed, and then only with due allowances for unusual conditions, such as the newness of the employe, his unfamiliarity with rules, regulations and operations, his mental condition and the reasons therefor, etc.

These investigations should be carefully compiled by the safety engineer whose experience in teaching best qualifies him for this part. In his study of safety devices, first aid work, and sanitary methods of resuscitation and sanitary conditions, he should also systematically classify all accidents which occur, with their causes. From these data it will be found that certain large groups of certain classes of accidents exist, differ-

(Continued on Page 224)



SAFETY MEN OF STANDARD OIL GROUP

Front row (left to right)—J. A. McDevitt, T. W. Waddington, F. L. Newcomb, R. S. Bonsib, E. A. Timm. Back row (left to right)—T. N. Shaw, D. J. Wallace (Humble Oil & Refining Co.), J. S. Gibson, G. B. Cooke, W. A. Gotschall, F. C. Singleton, J. O. Fergusen.

*Before National Safety Congress, Petroleum Division, Louisville, Ky.

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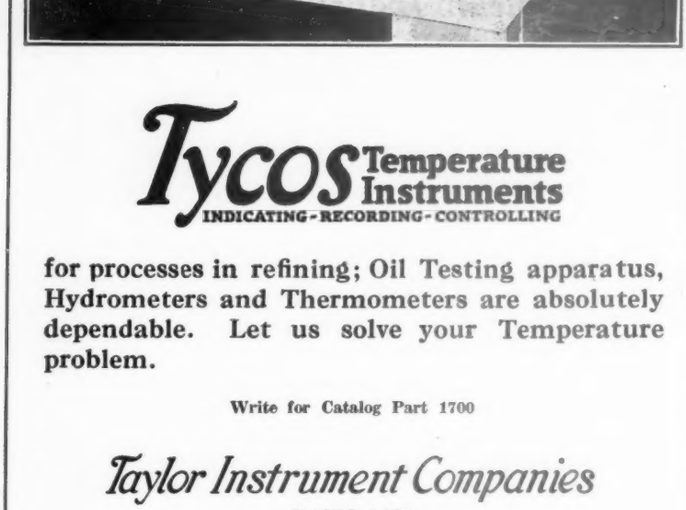


OKLAHOMA

(Continued from Page 76)

C SW NW NE, Section 26-10-9. The Indian Territory Illuminating Oil Co. was rigging up its No. 2 Williams, C SE SE SE, Section 34-10-9. The Kingwood Oil Co. was building a rig for its No. 3 Sand, C NE SE SW, Section 35-10-9, and T. B. Slick had a rig up for his No. 3 Sands, C SW SE SE, same section.

On the Hughes County side of the line, in the northeast trend of the Papoose Pool, the Independent Oil & Gas Co. had a rig up for its No. 1 Alexander, C NW NE NE, Section 2-9-9. The same company was drilling at 700 feet in its No. 7 Alexander, C SW NW NE, same section.

The Cosden Oil & Gas Co.'s No. 6 Alexander, C SE NE NW, Section 3-9-9, made 350 bbls. natural from sand at 3,271-3,306 feet. Slick and others were building a rig for their No. 3, C NW NW NE, Section 3-9-9. T. B. Slick had rigs on the ground for No. 1 Grayson, C SW SE NE, and for No. 2, C NE NW SE, same section. The Foster Investment Co.'s No. 1, C SW SW NE, Section 4-9-9, an old well, made 1,020 bbls. natural when deepened to 3,310 feet in sand topped at 3,287 feet. Same company's No. 2, C NW SW NE, same section, another old well, was good for 600 bbls. natural from sand at 3,321-35 feet.

The Skelly Oil Co. had a well good for 710 bbls. in its No. 1 Carter, C SW SW NW, Section 4-9-9-, from sand at 3,333-38 feet.

One well in the western part of the pool failed to find production. It was the Sinclair Oil & Gas Co.'s No. 1 Willis, C NE NE SE, Section 5-9-9, and was abandoned at 3,375 feet. The White Eagle Oil & Refining Co. likewise completed a failure in its No. 1 Brown, C SW SE SW, Section 8-9-9, being dry at 3,477 feet.

Gilcrease Pool

In the Gilcrease part of the field, the Independent Oil & Gas Co.'s No. 1 Brown, C SE SW NE, Section 18-9-9, was making 14,800,000 feet of gas from sand at 3,405-28 feet, with total depth at 3,432 feet. The Josey Oil Co.'s No. 1, C SW SW NE, Section 22-9-9, was good for 140 bbls. natural and 29,000,000 feet of gas from sand at 3,382-3,410 feet, total depth being 3,415 feet. The Furman Petroleum Co.'s No. 1, NW cor. SW SW, Section 21-9-10, an old well, was making 30,000,000 feet of gas from sand at 3,088-3,100 feet.

The Tidal-Osage Oil Co.'s No. 1 Coachman, NE cor. SW SW, Section 4-9-11, was drilling at 1,485 feet. Same company's No. 3 Baker, SE cor. NW SE, same section, had a 100-bbl. showing from sand at 2,950-82 feet. The Tidal's No. 1, C SE NE NW, Section 9-9-11, was drilling below 2,575 feet, and the Mid-Kansas Oil & Gas Co. has a rig built for its No. 3 Bruner, C NW SW NE, same section.

In the Buckner vicinity, western Hughes County, where the Roxana wildcat in Section 12-8-8 was still fishing, the Berry Petroleum Co. was spudding its No. 1, C SE SW SW, Section 1-8-8, and the Roxana Petroleum Corp. was drilling at 1,215 feet in its No. 1, C SW SE SW, same section. The Sinclair Oil & Gas Co. was spudding its No. 1 Manley, C SE SW NW, same section. The Roxana Petroleum Corp's discovery, C NW NE NW, Section 12-8-8, was flowing 301 bbls. through casings and tools in the hole, from sand at 3,400-06 feet. No. 2, C NE NW NW, same section, was drilling at 600 feet.

In the Wewoka Field, Seminole County, the Dixie Oil Co. was rigging up to deepen its old well, No. 1, C SE NE NW, Section 32-8-8, at total depth of 3,142 feet.

Stroud Field

In the Stroud Field, Lincoln County, C. F. Noble's No. 2 Townlot, Lot 14, Block 4, CSL NE NE NW, Section 12-14-6, topped sand at 4,080 feet and while drilling at 4,130 feet had 2,000 feet of oil in the hole. J. V. Bailey's No. 1, Lot 1 Block 12, same section, started at 360 bbls. from sand at 4,085-4,150 feet, and at latest report was down to 185 bbls.

The Wolfe Brothers abandoned the location for their No. 1, SE cor. Section 16-14-5, Lincoln County.

Wheeler & Webb's No. 1 Townsite, Lot 8, Block 3, Section 12-14-6, was good for 360 bbls. after a 60-quart shot in sand at 4,110-78 feet. The Roxana Petroleum Corp.'s No. 1, SW cor. SE NW, Section 7-14-7, which made 1,422 bbls. natural and 800 after shooting with 75 quarts, was down to 614 bbls.

In Okmulgee County, W. R. Summerville shot his No. 1, SW cor. NW NE, Section 28-14-14, with 80 quarts in sand at 1,803-36 feet and it made 20 bbls. J. J. Rebold may have to skid the rig on his No. 1, SW cor. NW, Section 6-13-11, which was drilling at 500 feet.

Across the line in Muskogee County, E. C. Robinson's No. 3, CSL SE NW, Section 27-14-15, was making 4,000,000 feet of gas from sand at 704-10 feet.

In Jefferson County, the Carter Oil Co. was building a rig for its No. 1, NW cor. SW SW, Section 34-6s-5w.

Landis & Eliza abandoned their No. 1 Spain, SE cor. Section 33-7s-6w, as dry at 1,150 feet. Tarkington & Kelsey were rigging up for their No. 1-A Spain, having skidded the rig 35 feet west from the Landis & Elzea well. The Magnolia Petroleum Co. was drilling at 545 feet in its No. 1, C NE NW NE, Section 25-6s-6w, Kelsey & Tarkington were drilling their No. 1-A Spain, SE cor. Section 33-7s-6w, at 100 feet.

In Garvin County, the Magnolia Petroleum Co.'s No. 4, C NE NW SE, Section 16-1n-3w, made a 15-bbl. pumper from sand at 1,639-70 feet.

In Sequoyah County, H. U. Bartlett abandoned his No. 1, NE cor. NW NW, Section 15-10-23, as dry at 3,900 feet.

Stephens County

In Stephens County, the Mid-Kansas Oil & Gas Co.'s No. 5-A Bristow, CWL NW NW SW, Section 18-2s-7w, an old well, was producing 2 bb's. of oil and 25 bbls. of water from sand at 1,898-97 feet.

In Stephens County, the C & O Drilling Co.'s No. 1 Warner, CWL SW NE, Section 22-1s-8w, averaged 97 bbls. for the first three days from sand at 2,011-22 feet. The Grisby Oil Co. abandoned its No. 1 Rice, SE cor. SW NE, Section 27-1s-8w, as dry at 1,895 feet, and had a rotary rig up for No. 2 in the SW cor. NE, same section.

In Cotton County, the Goldeline Oil Co.'s No. 1, SE cor. NW SW, Section 9-1s-9w, was drilling at 1,400 feet.

In Comanche County, the Whalebach Oil Co. abandoned its No. 1, SW cor. SE, Section 33-2n-9w, at 2,482 feet.

Steve Linson had 6,000,000 feet of gas in his No. 2, C NW NE NW, Section 14-2s-11w, Cotton County, from sand at 1,991-98 feet. In the southern part, G. C. Woods abandoned his No. 1, SE cor. SW SE, Section 22-5s-12w, at 2,501 feet.

In Carter County, Simpson & Fell had a rig in place for their No. 1, C SE SE SW, Section 27-1s-3w.

Sholem Alechem District

In the Sholem Alechem district, the Tidal-Osage Oil Co.'s No. 1, C SE SW NE, Section 28-1s-3w, found a hard sand at 3,171-79 feet which filled the hole 1,500 feet with oil but the bit went through and was down below 3,200 feet. The Magnolia Petroleum Co. was drilling at 1,550 feet in its No. 1, C SE SE SE, Section 29-1s-3w. The Twin State Oil Co. plugged back in its No. 1, C SW SE NW, Section 23-2s-3w, and was running tubing, being estimated good for 30 bbls. from sand at 2,146-65 and 2,383-90 feet. Same company's No. 4, SE cor. NW, Section 25-2s-3w, was swabbing 100 bbls. from sand at 2,780-90 feet and 3,214-[illegible] feet. The Cottonbelt Oil Co.'s No. [illegible] Spears, C NE SE SW, Section 30-2s-2w, made 75 bbls. in 12 hours from sand at 2,560-75 feet. Wirt Franklin was running tubing and packer in its No. 3 Underwood, C NW SE SW, Section 5-3s-2w, and it was estimated good for 40 bbls. It was shut down at total depth of 2,973 feet and may be drilled deeper.

In the Amerada Pool, south of Ardmore in Carter County, the Amerada Petroleum Corp.'s No. 4, SE cor. NW

NE, Section 20-5s-1e, made 105 bbls. in the first 24 hours and 51 bbls. the second day from sand at 1,760-61 feet. Same company's No. 16, south offset to No. 4, produced 270 bbls. in 24 hours from sand at 1,702-36 feet (corrected.) A machine was on the ground for No. 18, C NW SE NE, Section 20-5s-1e, and No. 1 Clay, NW cor. SW NE, Section 28-5s-1e, was drilling at 400 feet.

In Kiowa County, Conner and others abandoned their No. 2, CNL NW, Section 34-7n-16w, as dry at 1,548 feet.

In Washita County, another failure was recorded. It was the Sun Ray Oil Co. & Aubyme's No. 1, SE cor. Section 33-8-18w, which was abandoned at 2,184 feet.

In Grady County, the Hay Garber Drilling Co.'s No. 1-A, C NW SE, Section 24n-8w, was a 10,000,000-foot gasser from sand at 1,394-1,405 feet. John B. Nichols abandoned his No. 2 Mayo, CNL NE NE NE, Section 17-5n-7w, as a failure at 2,500 feet.

In Caddo County, the English Drilling Co.'s No. 4 Hedlund, NE cor. SW NE, Section 11-5n-9w, was drilling at 100 feet.

In Carter County, the Carter Oil Co. was cleaning out its No. 1 Shellenberger, SE cor. NE SW, Section 16-4s-2w, an old well, at 2,062 feet. Four other old wells in Section 22-4s-2w, were cleaning out to drill deeper.

N. LOUISIANA-ARKANSAS

(Continued from Page 62)

casing at 47 feet in No. 1 Smith, Section 25-15-17.

The Pure Oil Co. set 6-inch casing at 2,202 feet in No. 2 Johnson, Section 30-15-15; Rowe & Harrell drilling No. 1 Minor, Section 20-15-16, at 1,250 feet; Simms Oil Co., rigging up No. 4 Caskin, Section 30-15-15.

Stumph & Todd are drilling plug at 2,230 feet in No. 4 LaGrone, Section 30-15-16; Sure Oil Corp. has 1,200 feet of oil in hole and arranging to pump 7 feet of sand at 2,246 feet in No. 1 Stringfellow, Section 28-15-16.

Bienville Parish

Borden and others are arranging to deepen from 2,280 feet No. 1 Thomas, Section 8-16-19.

Bossier Parish

Armistead, trustee, temporarily abandoned No. 1 Bernstein, Section 11-20-13, at 1,180 feet; G. W. Wetherbee set 12½-inch casing at 206 feet in No. 1 Bollinger, Section 32-23-11; Skannel and others' moved rig back on No. 2 McDade, Section 10-17-12, and arranging to drill deeper; drilling at 1,200 feet.

Bellevue Field

The Autrey Oil Co. set 6-inch casing at 300 feet in No. 6 Smith, Section 27-19-11; Webb and others tested dry No. 2 Catlet, Section 27-19-11, and arranging to run core barrel at 1,066 feet.

Caddo Parish

The Dixie Oil Co. is drilling No. 64 Robertshaw, Section 13-21-15, at 560 feet; Fortuna Oil Co. drilling No. 12 Doan-Thigpen, Section 5-20-16, at 2,199 feet; Gulf Refining Co. drilling lime at 3,849 feet in No. 216 Ferry Lake, Section 14-20-16.

The La-Tex Com Oil Co. is running core barrel at 3,078 feet in No. 1 Rodessa Oil & Lumber Co., Section 15-23-16; the Proven Production Co. set 8-inch casing at 1,049 feet in No. 1 Agurs, Section 6-16-16.

The Richardson Oil Co. is rigging up No. 1 Bickham, Section 15-18-15.

The Texas Co. set 12-inch casing at 60 feet in No. 1 Federal Jeems Bayou, Section 13-20-16; Wilson and others set 6-inch casing at 910 feet in No. 1 Bryson, Section 18-17-16.

Claiborne Parish

The El Dorado Chief Oil Co. is drilling No. 1 McElwee, Section 13-22-7, at 1,165 feet; Gulf Refining Co., drilling No. 1 Farmer, Section 35-23-6, at 2,490 feet; Pomeroy and others set 10-inch casing at 425 feet, and drilling at 895 feet in No. 1 Harmon, Section 34-20-6.

De Soto Parish

The Greyhound Syndicate is drilling in lime at 2,500 feet in No. 1 Pollock, Section 36-11-14; A. H. Tarver, drilling No. 1 Hewitt-Hicks, Section 10-11-14, at 2,730 feet; Dr. C. C. Wright and others have rebuilt derrick on No. 2 Southerland, Section 18-12-14, abandoned on December 15, 1921 at 2,641 feet by the Natural Oil & Gas Co., and rigging up to drill deeper now.

La Salle Parish

The Columbia Oil & Gas Co.'s No. 1 Urania, Section 22-10-2e, shut down at 200 feet.

Morehouse Parish

The Oil Field Exploration Co. is rigging up No. 1 Betz, Section 41-21-5e, and the Natural Gas Producing Co. has derrick up for No. 4 Tensas Delta, Section 3-21-4e.

Ouachita Parish

The Chester Carbon Co. had derrick up for No. 1 Wetzell, Section 36-19-4e; Dickson & Frue, drilling No. 1 Goodwin, Section 24-18-2e, at 30 feet; Ladell and others set 6-inch casing at 2,175 feet in No. 29 fee, Section 30-19-5, and set 10-inch casing at 200 feet in No. 30 fee, Section 10-19-5. The Palmer Corporation set 6-inch casing at 2,236 feet in No. 3 Leiber, Section 4-19-5.

The Southern Carbon Co. set 6-inch casing at 2,175 feet in No. 38 fee, Section 29-19-5; and 10-inch casing at 155 feet in No. 39 fee, Section 7-19-5, and in same section drilling No. 40 fee, at 1,706 feet and derrick up for No. 41 fee.

The Texas Co. has derrick up for No. 3 Ladell, Section 11-19-4.

Union Parish

The Dancinger Oil Co. is rigging up No. 1 Grayling, Section 32-21-4; Jones Walker Co. rigging up No. 1 Feazel, Section 6-19-2e; Natural Gas & Petroleum Co. rigging up No. 2 Grayling, Section 8-21-4e.

The Roxana Petroleum Co. has derrick up in Section 18-22-2 for No. 1 J. P. Vose.

West Carroll Parish

The Arkansas Fuel Oil Co. pulled casing and abandoned No. 1 Fiske, Section 8-21-10e; Orion Oil Co. fishing for drill stem at 3,375 feet in No. 1 Bain Wagon Co., Section 23-23-10e.

Columbia County

Phillips and others are drilling No. 1 Davis, Section 15-18-20, at 810 feet.

Hempstead County

The Fullilove Drilling Co. is drilling shale and boulders at 1,325 feet in No. 1 Ford, Section 31-14-23.

Nevada County

Greesom and others are drilling No. 1 Lester Mill Co., Section 31-11-26, at 1,462 feet.

BUREAU OF STANDARDS PETROLEUM WORK

(Continued from Page 213)

foreign substances has begun to yield information relative to the factors which control dilution.

The indications are that the rate of dilution may be decreased by changes in operating conditions which also tend to increase the efficiency of combustion. This work is continuing under somewhat reduced headway, but it is hoped this condition will be remedied.

When we consider what the elimination of crank case contamination offers in the way of officient utilization as fuel of a larger percentage of the crude in automobile engines and in the possible saving in lubricating oil which is discarded after 400-600 miles of service, it appears the effort expended to this end may be amply rewarded. A further gain to be expected is in the more general use of the lighter grades of lubricants which will doubtless result in a reduction of the fractional power loss and perhaps in more effective distribution of the lubricant to the bearing surfaces.

Oils and Lubrication

Transformer Oils.—A large amount of oil is used in electrical transformer cases and in oil switches. This serves both as an insulating material and as a means of cooling. It is very important the insulating properties be good and uniform methods be used for determining and specifying how good they are. For many years there have been notable discrepancies between the results obtained on similar oils by different large users. The bureau undertook a comparison of methods and results obtained with the various types of spark gaps used in this country for testing transformer oil. This work resulted in the adoption of a standard and uniform method but there still remains the problem of obtaining international agreement so that results of tests made here and abroad will be comparable.

As a by-product of this work considerable information has been obtained concerning the effects of impurities, such as water, sediment and fibers, in the oil and it appears possible the usefulness of the oil in general may be materially increased by changes in methods of preparation.

Illuminating Oils

Another field in which there is need of better specifications and more uniform testing methods is illuminating or burning oils. In this field the work of the bureau has been limited almost entirely to making routine tests requested by various branches of the Government service. These tests have included a wide variety of oils, including not only ordinary kerosenes, but special illuminating oil for use in lighthouses, signal oils for hand letters and long burning oils for railway signal lamps. While the advantages of uniform testing methods are obvious, it appears that for such a variety of purposes it is quite impractical to have any single method of test. The opinion of the bureau is that the performance of different types of oils can not be judged in any other way than by burning them under conditions similar to those of actual use. Consequently the bureau's recommendations in the formulation of specifications is in favor of tests with standard equipment of the types in which the oil is to be used.

Lubrication

The research work at the bureau on lubrication comprises investigations along several different lines, all directed towards a better understanding of the basic factors which measure the service performance of lubricants.

Tests of the various classes of lubricants on the journal testing machine yield data on the relations between viscosity bearing pressures, speed and friction loss.

Engine tests in the laboratory are run under conditions designed to throw light upon the value of the lubricant from the standpoints of reduction of friction, reduction of wear and stability of the oil.

Laboratory examinations of the new and the used oil are made for the purpose of obtaining correlation between the physical and chemical properties of the oils and their performance in service and in obtaining a measure of the extent to which the oils have deteriorated in service.

Some additional oil testing devices of the friction type and special equipment for testing gear lubricants under load, are in process of construction. The extension of our lubrication program along the proposed lines should yield useful information regarding the testing and performance of lubricants.

We must all realize this lubrication problem is one of prime importance, for if it were not for the thin film of lubricant which separates the bearing surfaces of our engines, turbines, and shafting, our present industrial development would have been impossible. Let this film disappear or fail for one minute in any piece of high speed machinery in operation and all you have left is a pile of junk.

In the early days animal and vegetable oils were adequate to meet the demands for lubrication. These oils have their advantages but we must depend upon the petroleum oils for the bulk of the work for even though the fixed oils were entirely suitable for our present needs, the supply is inadequate.

We have about ceased to hear the cry for the "good old gasoline." We realize that the present fuel is good gasoline and there is little doubt that there would not now be some 15,000,000 automobiles in operation if we had to rely upon the more volatile fuels. The fuel would not have been available and its price would necessarily have been high.

However, there seems to be a sentiment that the lubricating oil is not what it used to be. This idea has been repeatedly brought to the attention of the bureau by men who are in a position to speak intelligently on the subject.

Is there any basis for this belief or is it due to the increasing demands put upon the lubricant? We should know. It is significant, perhaps, that where formerly a large part of our lubrication was accomplished by once over lubrication, the practice has developed through the simple settling and filtration used in the smaller power stations to the highly developed and rapidly circulating systems now used in large turbine installations and there is also a tendency towards oil cleaning systems on automobiles.

Unfortunately lubricating oils have been bought and sold on the basis of tests which seem to have little direct bearing upon their service characteristics. These tests have grown up, so to speak, with the industry and all the laboratory is able to say is that on the basis of these tests it is difficult if not impossible, to distinguish between good and bad oils.

This is a very undesirable state of affairs in view of the very important part which lubrication plays in our industrial life. How can we advance if we have no definite standards by which to judge our progress? We know that actual service data based on necessarily limited observations are often misleading, because all of the conditions are not under close control, and this type of test is too costly and time consuming as a basis on which to buy and sell oils.

I think that you will agree that lubrication research is much needed in order to obtain information which may permit more definite interpreting of the usual laboratory tests of oils in terms of service performance or possibly to indicate new tests which may have a definite meaning.

This is a big problem and will probably not be settled by the work of one or two laboratories, nor within a short time. I have indicated our general program and trust that we will have your hearty cooperation, advice and support.

South Dakota War Breaking Out Anew, Consumers May Lose

SIOUX CITY, S. D., Oct. 6.—An entirely new phase of the gasoline situation in Sioux Falls has been created by the Mills Grain & Supply Co., placing gasoline on sale at 14.9 cents. The grain company has opened only one station, which it had dubbed the "Teapot Dome" station. Saturday night the Merchants Oil Co., an independent concern, announced it would sell gasoline at 14½ cents, starting Sunday, at the "Outlaw" station in Sioux Falls. This company has fixed a price of 14.9 cents at its regular Main Avenue station, to meet the price of the Mills Grain & Supply Co.

Some other independent dealers in Sioux Falls are selling gasoline at 15 cents, the price charged at the station opened by the State of South Dakota at the State penitentiary here. Free service is missing at stations with the lower prices, but the "extra" service features are being maintained at oil stations in Sioux Falls selling gasoline at from 17 to 18½ cents, with a fairly good business reported.

In the meantime, gasoline users of South Dakota are exercising considerable interest in the action taken by the State convention of county commissioners and county highway superintendents in favor of the next legislature adding 1 cent to the State gasoline tax, making it 3 cents per gallon. This has caused some State newspapers to suggest that if the State keeps on increasing the State gasoline tax it will soon be getting all the saving to consumers resulting from the gasoline price "war."

Petroleum Accidents of Oklahoma

Classification by Industrial Divisions, Causes and Time Lost. Compensation and Economic Cost Considered. Startling Figures

By H. C. Fowler
Associate Petroleum Engineer, United States Bureau of Mines, Department of the Interior

In undertaking the study of accidents to aid in eliminating hazards attendant upon the production, pipe line transportation and refining of oil, the United States Bureau of Mines recognized the need of a working chart upon which to base its theory and practice. Accidents were classified by causes to have definite records that would help in diagnosing the case.

A classification of accidents by causes is a means to an end in preventing accidents.

An analysis of the accident experience of Oklahoma discloses important facts that have bearing on the problems of every State where the petroleum industry is an economic factor.

The analyses considered are of accidents which were subject to compensation under the law of Oklahoma. It is a review of compensable cases occurring during 1923 in the producing and drilling, pipe lining, and refining of petroleum. The tabulations do not include the accidents records of refined oil distributors, such as filling stations, structural steel contracting companies engaged in the work of tank construction, or material supply companies.

The charts show several outstanding facts regarding the accident experiences of Oklahoma. In all 3,728 compensable cases were compiled, classified and analyzed. This number is represented by the full circle graph or 'pie diagram." Of this number 2,686, or 72 per cent were found chargeable to drilling and production; 472, or 12.7 per cent, were pipe line accidents; and the remaining 570, or 15.3 per cent, occurred at refineries and gasoline extraction plants. The accidents listed under drilling and production include those occurring in the drilling and handling of natural gas wells. The 472 pipe line accidents include those occurring to employes engaged in laying natural gas mains from sources of supply to points of distribution.

The relatively small number of pipe line and refinery accidents compared with those in drilling and production is to be expected, because a smaller number of men are engaged in pipe line and refinery work. The Petroleum Experiment Station at Bartlesville, Okla., has a list of 1,730 oil operators, drilling contractors, refineries, and pipe line companies now doing business in Oklahoma. Some employ a few men whereas others have a payroll of several thousand. The total number employed is variable and is not known, but a bulletin issued November 1, 1921, by the Oklahoma Department of Labor shows that during 1921 20,306 field and plant employes were reported by 228 concerns. Of this number employes 63.2 per cent were engaged in drilling and production, 15 per cent in pipe lining, and 21.8 per cent in refining and gasoline extraction.

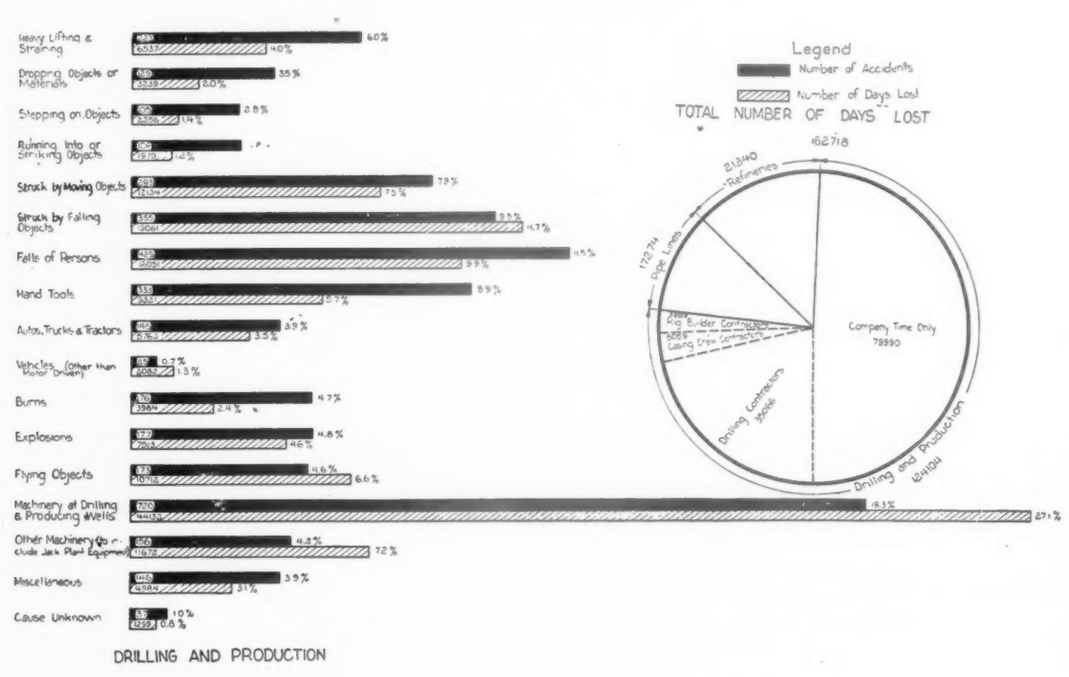
Classification of Accidents

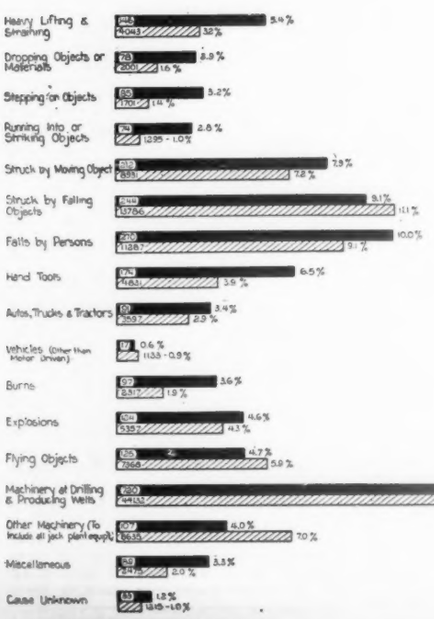
The study of the Oklahoma accident records for 1923 shows that out of the 2,686 compensable cases occurring in the development and operation of oil properties, 68 per cent happened to employes working on company payroll 24½ per cent to employes of drilling contractors, 3½ per cent to men working in casing crews, and 4 per cent to contract rig builders. No data are at hand regarding the total number employed in each division.

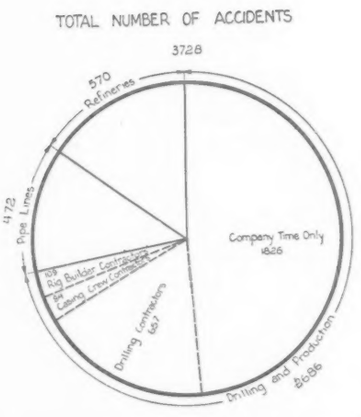
To study accident severity it is necessary to adopt a scale of time losses by which weight may be given to each case of permanent disability. The equivalent weights of the Oklahoma law upon which compensation is paid in that State have been used.

What a man's foot or eye or finger is worth to him and to the public in general is difficult to answer. Only through the study of accident experience over a long period can an approximation be reached. A definite scale of time losses may not be the correct basis for an ultimate solution but it has helped to settle many questions

*By permission of Director of Bureau of Mines, before Petroleum Section, National Safety Congress, Louisville, Ky.







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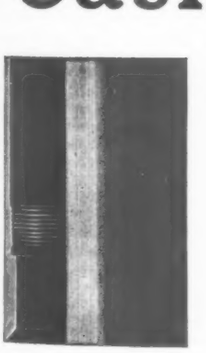

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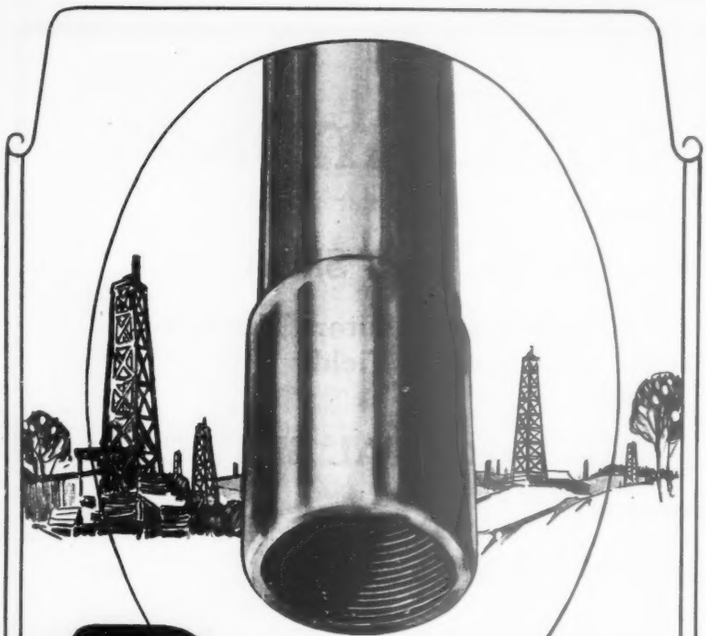

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and seems to be the best working principle thus far accepted by the majority. A standardized schedule should be adopted by all States.

The "pie diagram" shows that 162,718 days' time was lost because of the 3,728 accidents. The records of 191 cases state specifically that infection was directly responsible for the loss of time or prolonged the period of convalescence, while 288 permanent partial disabilities gave the equivalent of 66,404 lost days or 40.8 per cent of the total lost time, although they represent only 7.7 per cent of the total accidents.

The percentage of total time lost is practically the same as the percentage of the total number of accidents in each of the three general divisions of the industry. This is shown clearly by the two "pie diagrams."

Classification by Causes

A classification by causes was made to find out where and under what circumstances accidents have occurred. After reviewing the 3,728 cases they were grouped under 17 main heads, one of which is "Cause Unknown," because about 1 per cent of the records did not give the circumstances of the accidents.

In Drilling and Production

One bar diagram shows definitely where the majority of the accidents resulting from the drilling and production of oil occur. In this department there was a total of 2,686 accidents causing 124,104 days' lost time. Machinery at drilling and producing wells was responsible for 720, or 26.8 per cent, of these accidents. These 720 accidents caused the loss of 44,132 days. which is 35.6 per cent of the time lost in this department.

Permanent partial disability cases, 121 in number, caused over one-half of the total days lost time due to machinery at drilling and producing wells. Pipe tools, including tongs and wrenches, circle jacks and casing poles, caused more accidents than any other machinery equipment at the wells, 18.8 per cent of the 720 accidents being caused by such tools. Gas engines, where accidents were due mainly to cranking and being caught in fly wheels, came next for number of cases, but in point of time lost, traveling blocks ranked second. This is a logical result when one considers that out of 47 traveling block accidents, 25 were permanent partial disabilities. An unguarded traveling block shows no mercy and a man whose hand is caught in a wicker has all the odds against him. Pipe tools, traveling blocks, gas engines and elevators present definite hazards that will bear well the careful attention of the safety engineer, the field superintendent and the man on the job.

The chart shows both the number of cases and days lost time for each of the 17 classes of accidents. Their order according to days lost time is as follows:

Accidents in Drilling and Producing

Cause of accident—	Percentage of total time lost
1. Machinery at drilling and producing wells	35.6
2. Struck by falling objects	11.1
3. Falls of persons	9.1
4. Struck by moving objects	7.2
5. Other machinery (to include all jack plant equipment)	7.0
6. Flying objects	5.9
7. Explosions	4.3
8. Hand tools	3.9
9. Heavy lifting and straining	3.2
10. Autos, trucks and tractors	2.9
11. Miscellaneous	2.0
12. Burns	1.9
13. Dropping objects or materials	1.6
14. Stepping on objects	1.4
15. Running into or striking objects	1.0
16. Vehicles (other than motor driven)	0.9
17. Cause unknown	1.0
	100.0

More than half of the accidents due to "Machinery Other than at Wells," fall under the heading of Jack plants and 16 out of the 67 cases listed were permanent partial disabilities occasioned by hooking on or off wells. Also, of the 124 explosions, 55 were due to ignition of gas and resulting fires at wells, where in many cases property loss far exceeded the actual cost of the injuries received by the men working on the derrick floor.

Pipe Line Accidents

A bar diagram shows graphically the relative frequency and severity of pipe line accidents. "Struck by Falling Objects" comes first in the number of days lost time, but "Hand Tools" were responsible for a greater number of recurring accidents. "Falls of Persons" also ranks well up on the scale. There were 29 permanent partial disability accidents listed under pipe lines for the year.

Accidents at Refineries

A bar diagram shows the accidents at refineries. Here they center around "Falls of Persons," "Struck by Falling Objects," and "Hand Tools," as was the case under "Pipe Lines." In this department, however, "Falls of Persons" leads the others both in number of cases and days lost time. This indicates a need for better scaffolding and greater care on the part of men working above the ground. Twenty-seven permanent partial disabilities were chargeable to the refining of oil.

Total Accidents

There is a close similarity between the graph, which is based on the total of 3,728 cases causing 162,718 days lost time for the petroleum industry, and the one which represents accidents in drilling and production. This might well be expected. The greater number of men engaged in drilling and production gives this department the greater weight in the totals and, aside from machinery at drilling and producing wells, the hazards are much the same in the three branches of the industry. However, it is well to consider the three-bar diagrams in connection with the cumulative graph of the others.

Total Time Lost

The Workmen's Compensation Law of Oklahoma makes no provision for accidents resulting in death and no weight has been given in the foregoing review to such accidents, but this does not mean that the industry is not paying for these cases.

Definite records of 19 fatalities which occurred during the first 6 months of 1923 are on file, but the record is not complete. Of the 19 cases, 8 occurred to men working on company time in oil fields, 6 were employes of drilling contractors, and one was a rig builder. Four of the men were killed at refineries.

In the case of death there is always a question as to what should be a fair charge against industry for a man's life. One man may represent 30 years' useful potential service while another may have only 10 years of work yet to do. It is a question of probability, but some definite assumptions, almost criteria, have been determined through past experience. According to the rating recommended by the Committee on Statistics and Compensation Insurance Cost of the International Association of Industrial Accident Boards and Commissions, one fatality is equivalent to 6,000 days. Using this rating the total number of days lost time to the petroleum industry in Oklahoma during 1923 should be increased from 162,718 days to 276,718 days on account of the 19 listed industrial deaths. This time loss is equivalent to 922 years. That is, the work of one man for 922 years would be required to offset the loss of time due to accidents in the petroleum industry of Oklahoma during the year 1923.

Another consideration is that of compensation. According to the records, these 3,728 cases cost in compensation $376,266. This figure is for compensation alone and includes no medical expense.

Against this is the sum of $960,000 lost to employes in wages not received on account of disabilities. This sum was computed on the basis of actual daily payroll against days lost time. If the equivalent of 19 fatalities were added, the sum would be in excess of $1,600,000. This is equal to the value of 1,430,000 bbls. of oil at $1.12 per bbl. This quantity of oil would fill a tank farm of 26 tanks, each having a capacity of 55,000 bbls.

The foregoing discussion of the economic cost of accidents has been presented because it is good business to know their burden on industry, but it should always be remembered that there is a greater cost—that of human suffering—which cannot be measured in dollars.

STANDARDIZATION CHAIRMAN FORM GENERAL COMMITTEE IN TULSA SESSION

By Ralph T. Baker

The work of standardization of oil field materials, fostered by the American Petroleum Institute, received a definite impetus in the right direction as a result of the meeting of the national chairmen of the various standardization committees of that body in Tulsa, Monday morning, October 6. A general committee on standardization was formed with J. Edgar Pew, vice president of the Sun Oil Co., Dallas, Tex., as chairman. Plans were formulated to give the general committee oversight of all problems of standardization, leading toward unity in action in these questions and giving a closer contact between the various active committees which have been working out the specific problems.

The final reports of the special committees on standardization of cable tool joints and specifications for steel and iron pipe were finally completed and approved by the new general committee for submission to the board of directors of the Institute. The general committee also ratified and approved for submission to the directors the design and use of an official monogram for equipment made under Institute specifications.

The national chairmen of the special standardization committees made reports on the progress of their specific undertakings, giving in detail some of the work that had been done since the 1923 Institute meeting. The members of the general committee discussed the possibility of forming a special group session for the discussion of technical field problems at the coming annual meeting of the American Petroleum Institute. Addresses on such suggested subjects as the pumping of deep wells and the cementing of wells may be scheduled. As a part of the standardization program at the annual session also, the committee decided to meet at the place set a day in advance of the scheduled opening to consider further reports by the special committees. It is thought by the members of the committees in Tulsa that the progress of the standardization work as shown in the reports of the chairmen of the special committees will prove interesting and helpful to the producers.

General Committee Named

The formation of the general committee on standardization was accomplished by the following members: W. S. Farish, president of the Humble Oil & Refining Co., Houston, Tex., chairman, and chairman of the committee of the board of directors of the A. P. I. on standardization; J. Edgar Pew, vice president of the Sun Oil Co., Dallas, Tex., chairman of the committee on steel and iron pipe; H. J. Lockhart, vice president and general manager of the Parkersburg Rig & Reel Co., chairman of the committee on rig irons; A. B. Steen, chief engineer of The Texas Co., Houston, chairman of the committee on boilers; W. W. Fondren, vice president of the Humble Oil & Refining Co., Houston, vice chairman of the committee on rotary drilling equipment; John T. Kirby, Oil Well Supply Co., Pittsburgh, Pa., vice chairman of the cable tool joint committee; William Warr, engineer of the Manhattan Rubber Manufacturing Co., Passaic, N. J., vice chairman of the belting committee; H. J. Leschen, president of the A. Leschen & Sons Rope Co., St. Louis, Mo., representing the wire rope manufacturers; C. C. Sharpenberg, assistant manager of the Standard Oil Co. of California representing the standardization committee of the Chamber of Mines and Oil of California, and C. A. Young, in charge of the standardization work of the American Petroleum Institute, New York City.

H. J. Lockhart was selected as the vice chairman of the general committee on standardization for the eastern part of the United States. C. C. Sharpenberg was selected as vice chairman for the western part of the United States. C. A. Young was appointed secretary.

The organization of the general committee finally provides in a definite way a means for intercommittee representation and conferences in the matter of standardization. Following the organization of the general committee, attention was turned to the committees of the Institute which were not complete. It was decided that efforts would be made to make each committee active and that representation should be secured from both manufacturers and users and that every district also should be represented.

In line with this renewed activity, Mr. Pew, as chairman of the general committee on standardization, appointed W. W. Fondren chairman of the special committee on the standardization of derricks. The rejuvenation work will extend to the committees on belting and wire rope also with the appointment of special committees and chairmen soon. The desires of the leaders in standardization work were brought out clearly in their evident purpose to extend the scope of the various special or working committees, getting wide representation geographically and industrially and then cementing and perfecting the entire business of standardization in the general committee on standardization.

As set out in the plan of the Institute "the fundamental purpose of the plan is to bring about the adoption of such specifications and methods as meet with the practically unanimous approval of the producers of crude oil and the manufacturers of equipment. It is not the purpose of the plan to impose specifications upon persons not desiring to use them, or to carry the standardization to a point where there is danger of interference with the individual initiative and with the progress of invention."

Reports Approved

The report of the special committee on standardization of cable tool joints, which was approved by the general committee for submission to the board of directors of the Institute, contains the table of dimensions for the various sizes of joints covering the following specifications: Nominal size of taper joint, number of threads per inch, type of thread, length of taper pin, size of wrench square, diameter of pin collar, diameter of box collars, length of box and pin collars, sizes for stems, for drilling and fishing jars, for drilling bits and for fishing tools and substitutes. Among other features covered are the following: Tolerances, basic thread form, recommended practice for turning threads, marking of joints, templates, testing of reference template, reports of tests of reference master templates, master templates, disputes and new sizes of cable drilling tool joints.

The report of the committee on standardization of specifications for steel and iron pipe for oil country use was approved by the general committee also for submission to the directors of the Institute. The report was substantially the same as that which was given at the annual meeting of the A. P. I. in St. Louis, December, 1923, with a few minor changes, which do not change the specifications but which facilitate the operation of the plans considerably.

Stamp of Approval

One of the most important developments of the work of the general committee was the ratification and approval for submission to the board of directors of the American Petroleum Institute of a design for an official monogram, together with a resolution regarding its use, stamp, etc. In this matter a bulletin has been issued to inform all manufacturers and users of the purposes and regulations relating to the use of the official A. P. I. monogram. It was recommended by the committee that the following statement be added to all specifications or standards calling for the use of such monograms that are adopted and published by the American Petroleum Institute:

"The foregoing specifications are for the use of all manufacturers desiring to use them.

"Manufacturers desiring to warrant that articles manufactured or sold by them conform with these specifications may under conditions obtain the license to use the official A. P. I. monogram (API)."

The recommended resolution proposed for adoption and regulation of the monogram gives as the purpose of the monogram the idea of identifying materials that comply with the standards or specifications, where such specifications call for the use of such monogram, that may be adopted by the board of directors of the Institute. The recommended resolution advised that the use of the monogram be encouraged wherever and whenever possible to inform the public that material so marked is manufactured in accordance with such specifications. The words "Official Publication" are to be incorporated in a circle around the monogram on all standards and specifications that may be adopted and published by the American Petroleum Institute. Authority for the use of the monogram will be given upon proper application.

EXPOSITION ATTRACTS RECORD CROWDS

(Continued from Page 36)

selves in time in money saved the producer.

In a hundred ways these instances are repeated. The oil man who takes advantage of this exposition will have the advantage of oil men whose lack of interest kept them away from it.

Historical Exhibit

The historical side of the oil business is taken care of in the Scientific and Technical Building with an interesting exhibit of ancient tools and photographs. This exhibition is under the direction of E. O. Mullin, who himself contributed several books of valuable old photographs taken by John Mather over a period extending from 1859 to 1881. Scores of old-time oil men, most of them now on the retired list visit this exhibit and regale Mr. Mullin with some of their own early experiences in the Pennsylvania fields in their booming days 50 and 60 years ago. The old photographs stir their memory and open the flood gates of reminiscence. These veterans of oil are generally surrounded by an interested crowd of present day oil men as they tell the story of how oil was produced and marketed in the very early days of the industry.

Friday's crowd was up to that of the opening day, but the first of the big crowds appeared on Saturday when over 10,000 admissions were recorded. Special trains from El Dorado, Ark., and Fort Worth, Tex., brought many operators from the fields of those two States. It was also a day when hundreds of Indians gathered in Tulsa to witness a football game between the Haskell Indian School and the University of Tulsa and in the evening the red men, who visited the exposition in large number, staged several Indian tribal dances on the plaza for the benefit of the pale faced oil man.

Big Crowds This Week

Sunday's crowd included hundreds of field men from nearby oil areas. Many Mid-Continent oil companies and individual operators had made arrangements to set aside days on which their field operatives were to visit the show and a goodly portion of Sunday's attendance was made up of these practical operatives while every day this week will see many more of them in from the fields for a thorough study of the hundreds of exhibits and their application to the daily employment of the field man. The attendance throughout this week will be very large judging from Monday's and Tuesday's crowd.

DULL WEEK IN OKLAHOMA REFINED MARKET

(Continued from Page 38)

are not attracting new buying, although regular customers are said to be paying the prices asked by the blenders. The lower gravities are selling at 58-60 (U. S. Motor) prices.

Fuel and Gas Oils

The main developments in fuel and gas oils have been previously explained. Railroads with their contract prices below the spot market are ordering out more material thus reducing the amount available on the spot market. At least three refiners who have been out of the market recently had both fuel and gas oil to offer last week and several large sales were made. There has been very little activity in the market so far this week.

Neutrals

A reduction in prices for the lighter viscosity neutrals is predicted. The demand for these grades has fallen off. The whole neutral market has in fact been somewhat disappointing and there has been some price cutting. There has been no adjustment of prices since the recent crude reductions and it is thought buyers have been holding back in their buying in expectation of changes. Both bright stocks and steam refined cylinder stocks are unchanged in price.

CALIFORNIA MARKETS SOMEWHAT IRREGULAR

LOS ANGELES, Cal., Oct. 4.—The California market is somewhat irregular at the present. Gasoline in cargo lots for eastern shipment has been decidedly weaker and quotations are fully ½-cent lower than a week ago. This is a very sharp reduction considering how firmly this business is held in the hands of a few large marketing concerns. U. S. Motor grade gasoline can be obtained at tidewater in California in almost any desired quantity at 9 cents per gallon. Some is being moved on contract at even less, sales being reported at 8¼ cents, 8½ cents and 8¾ cents. However, in view of the fact that these sales are contingent on various concessions by buyers, they can hardly be construed as representing the level of the market. At the other extreme we find British Commercial Specification motor gasoline being shipped from California at 10¾ cents per gallon. This product varies from our U. S. Motor grade in having a 392 end point instead of a 437 end point, about 30 per cent distilling over at less than 212 degrees Fahrenheit.

Absorption natural gasoline market has stiffened fractionally, spot lots now being offered and taken at 11 cents per gallon compared with a high of 10½ cents a week ago.

The fuel oil market is in a rather peculiar condition in California. Fuel oil at tidewater is firm at $1.40 per barrel and has been for many months. On the other hand, there appears to be a temporary oversupply in principal refining centers such as Los Angeles and Bakersfield. As a result, considerable fuel oil is being offered f.o.b. refinery in cars at anywhere from $1 to $1.20 per barrel. The fuel oil being sold at these prices does not represent any very large quantity, and cannot be said to establish a market. It does represent, however, the output of most of the small refiners who are unable to sell their product inside of their own local territory.

There have been no price changes in engine distillate, kerosene, the heavy fuel distillates or lubricating oils. In all these commodities, prices have held at their present level for some time.

TULSA COMPOUNDING PLANT

The Waite Phillips Co. has started the construction of a compounding plant at Tulsa. The company operates a refinery at Okmulgee, Okla., and has a large number of bulk and service stations in Oklahoma and nearby States.

RUSSO-GERMAN DEAL

Following the Russo-German oil agreement, negotiations have commenced, says a Riga message, with a view to the concession to Germany of the naphtha fields in the Caucasus and the district of Novorossisk and Grosny.

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The East entrance to the Exposition grounds is just a few hundred yards North of the MALONEY Plant.

We would like to have you look through our very modern and efficient shops and see how the ORIGINAL, PATENTED bolted steel tank is made.

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MALONEY
TANK MANUFACTURING CO.

Offices and Plant: Tulsa

12 to 3,000 Barrels Capacity
Prompt, Dependable Export Service

MADE OF KEYSTONE COPPER STEEL

160

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

MALONEY
"ALONE"

LITTLE CHANGE IN REFINERY CRUDE RUNS

(Continued from Page 37)

Magnolia Petroleum Co., Fort Worth	12,000	6,000	6,000
Magnolia Petroleum Co., Corsicana	10,000	2,100	3,000
Megargel Refining Co., Megargel	1,000	300	300
Mexia Oil & Refining Co., Mexia	600	150	150
National Refining Co. of Texas, Greenville	2,000	500	700
Noble Oil & Gas Co., Burkburett	5,000	2,600	.....
Olney Oil & Refining Co., Olney	1,000	300	2,500
Oriental Refining Co., Dallas	6,000	600	200
*Oriental Refining Co. (Trinity), Dallas	5,000	3,700	650
Orient Petroleum Co., Wichita Falls	2,000	750	3,000
Paris Refining Co., Paris	500	Shut down	750
Panhandle Refining Co., Wichita Falls	4,500	3,400	250
Prairie Refining Co., Grand Prairie	500	Shut down	5,000
The Petroleum Corp., Electra	2,000	800	Shut down
Primrose Refining Co., Wichita Falls	1,500	650	550
Producers Refining Co., Gainesville	5,000	4,300	700
Skelly Oil Co. (formerly Nortex Ref.) Burkburnett	2,000	Shut down	4,300
Star Refining Co., Fort Worth	1,500	700	Shut down
State Refining Co., Dallas	1,000	Shut down	650
Sunshine State Oil & Refining Co., Wichita Falls	2,500	1,000	Shut down
Tidal Western Refining Co., Burkburnett	3,000	2,000	1,400
The Texas Co., Dallas	15,000	8,400	2,500
Texhoma Oil & Refining Co., Wichita Falls	7,000	5,600	5,100
Tiger Refining Co., Breckenridge	1,500	100	5,800
Transcontinental Oil Co., Fort Worth	5,000	4,000	100
Travis Refining Co., Burkburnett	1,000	300	3,000
Waggoner Refining Co., Electra	3,400	2,500	200
White Eagle Oil & Refining Co., Fort Worth	5,000	3,000	2,500
Total	163,250	86,000	2,700

*Operated by the Magnolia Petroleum Co.

REFINING OPERATIONS IN KANSAS

(Plants which have been in operation during the past year)

Name and Location—	Daily Capacity	Runs Oct. 1	Runs Sept.1
Commonwealth Oil & Refining Co., Moran	1,800	300	350
Derby Oil & Refining Co., Wichita	6,000	3,900	2,200
El Dorado Refining Co., El Dorado	3,500	2,500	2,000
Frontier Refining Co., Hutchinson	2,500	Shut down	Shut down
Great Oil Co., Augusta	500	400	400
Golden Rule Refining Co., Wichita	1,000	600	600
Industrial Refining Co., El Dorado	1,500	Shut down	Shut down
Kansas-Texas Petroleum Co., Wichita	1,500	Shut down	Shut down
Kanotex Refining Co., Arkansas City	6,000	5,200	5,000
Kansas Oil Refining Co., Coffeyville	1,500	350	350
Kansas City Refining Co., Kansas City	4,000	3,600	3,600
Moore Refining Co., Arkansas City	6,000	4,700	4,000
Miller Petroleum Co., Humboldt	2,000	650	600
National Refining Co., Coffeyville	10,000	5,800	4,900
Peerless Oil Refining Co., Chanute	3,500	1,600	1,600
Red Bird Refining Co., Fredonia	200	75	75
Richardson Refining Co., El Dorado	1,500	Shut down	Shut down
Roxana Petroleum Corp., Arkansas City	15,000	9,000	12,000
Sinclair Refining Co., Coffeyville	6,500	4,800	4,800
Sinclair Refining Co., Argentine	8,000	4,000	4,000
Skelly Oil Co., El Dorado	14,000	8,000	8,500
Sterling Oil & Refining Co., Wichita	5,000	Shut down	Shut down
Standard Oil Co. of Kansas, Neodesha	12,000	5,500	6,000
Vickers Petroleum Co., Potwin	1,800	2,100	2,200
White Eagle Oil & Refining Co., Augusta	7,500	5,000	5,000
Southern Missouri Group—			
Interstate Refineries, Inc., Centropolis	1,500	Shut down	Shut down
Marshall & Co., Sheffield	2,500	Shut down	Shut down
Wilhoit Refining Co., Joplin	1,500	900	900
Total	128,300	68,975	69,075

REFINING OPERATIONS IN ARKANSAS

(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs Oct. 1	Runs Sept.1
Cross Refining Co., Smackover	2,000	1,900	1,400
Farmers Oil & Refining Co., Texarkana	750	Shut down	Shut down
Four States Refining Co., Texarkana	2,000	200	200
Grison Refining Co., El Dorado	750	Shut down	Shut down
Home Oil & Refining Co., Camden	750	100	700
Hot Springs Refining Co., Hot Springs	500	100	Shut down
Houston Oil Co., Camden	5,000	Building	Building
Jones & Co., R. C., El Dorado	1,000	Shut down	Shut down
Kettle Creek Refining Co., Pearson	4,000	3,000	2,000
Lion Oil & Refining Co., El Dorado	12,000	5,400	5,000
Ouachita Valley Refining Co., El Dorado	1,500	Shut down	Rerun
Pine Bluff Refining Co., Pine Bluff	2,000	400	500
Root Refineries, El Dorado	3,000	2,000	2,000
Shippers Petroleum Co., El Dorado	700	Shut down	Shut down
Union Pipe Line & Refining Co., El Dorado	4,000	750	600
Total	39,950	13,850	14,100

REFINING OPERATIONS IN NORTH LOUISIANA

(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs Oct. 1	Runs Sept.1
Caddo Central Oil & Refining Co., Shreveport	3,500	3,000	3,000
Caddo Central Oil & Refining Co., Shreveport	7,000	4,000	5,000
Louisiana Oil Refining Corporation, Shreveport	10,000	10,000	10,000
*Louisiana Oil Refining Corp., Bossier	3,000	600	800
Shreveport Producing & Refining Co., Shreveport	5,000	4,000	4,000
*The Texas Co., Ardis	5,000	4,500	4,500
Total	33,500	26,100	27,850

*Topping.

EFFECTIVE SAFETY METHODS IN MARKETING

(Continued from Page 216)

however, with each operation in the storing, handling and distributing of petroleum products, and those particular groups are the ones upon which concentrated effort should first be made. It will be found in the warehouses, for instance, that strains, ruptures, falls, and bruises form the most prevalent sources of accidents. While in the garages, repair shops, and construction departments, cuts, eye injuries and others injuries to repair men are most prevalent.

Self Preservation

There is no appeal greater than that of "self preservation." It is well, as a means of arousing great interest, to start with lectures on the direct saving of human life, made to apply to particular branches of employment.

One of the most important subjects to use in this connection is: "The Formation of Safe Habits." This may be termed a foundation on which all accident prevention work is builded inasmuch as the formation of safe habits among all employes will practically eliminate the occurrence of accidents. The employe who has formed safe habits does his work in a safe and efficient manner as a matter of habit.

Lectures on safety should be given in such a way as to arouse the interest of station agents and division heads. There is an increasing tendency in our safety work to use the bulk or distributing agents as centers from which to radiate safety ideas. These men should be brought together in groups and given actual instructions in first aid and accident prevention work.

When an accident does occur, the station agent is to be notified immediately and he, in turn, directs the employe who has had the accident; when and where to get medical aid, how to secure names and addresses, license numbers and statements of witnesses. The station agent is also in a position to make recommendations concerning the safety of his plant; he is urged to place orders to have safety devices installed, and he is held responsible for the safety, sanitation and wel-

fare of every employe in his plant. The agent, in other words, has every facility and every liberty in instituting accident prevention work and in using discipline if necessary to make working conditions safe. If we center responsibility in the station agents and division heads, placing every facility and suggestion at their disposal, we accomplish the best results.

Physical Condition

The introduction of medical and physical examinations of new employes is one of the greatest steps taken in recent years, towards placing a premium on health and good health has considerable bearing on accident prevention. It means greater efficiency as well as less tendency towards accidents.

Marked progress has been made in recent years by large industries in the matter of installing emergency hospitals for the care of the sick and injured, and in the general instruction of their employes in first aid work. First aid kits should be installed at convenient places about the plant offices, warehouses, machine shops, etc., and agents, or their employes, should be taught first aid methods.

There is probably no form of accident prevention worth more to the petroleum industry, especially, in the matter of storing, handling and distributing of petroleum products, than the prevention of accidents due to fire. This matter should be gone into so thoroughly that freedom from loss of life should reach 100 per cent.

In locating sites for erecting either a bulk distributing or gasoline filling station, thought should first be given to fire hazards. The community surrounding the proposed site should be carefully scrutinized from a safety, as well as from a business standpoint; the inhabitants themselves should be studied to ascertain their habits and mode of living—in short —everything of a hazardous nature should be carefully considered and recorded before the actual purchase is made.

Fire Risks

Plans, drawings and specifications should be checked by the safety department to make sure that every provision is made for safety. This scheme should be followed throughout the building program and until the station is finally completed. In the building of large bulk distributing stations, modern fire proof structures should be built of concrete, brick and steel, having large window spaces, plenty of ventilation and ample exits. The diking of tanks and other rules governing the erection, spacing, etc. should be strictly adhered to.

It so often happens that long after a bulk distributing station has been built other concerns, foreign to the petroleum industry erect their plants adjacent to the properties of the particular oil company. These are often found to be granaries, lumber yards, saw mills, coal and wood yards, and electrical supply stations who often stretch high tension supply lines over or near the oil station. All these are considered elements of danger, therefore and notwithstanding the fact, that the greatest restriction is unjustly placed upon the oil companies in locating and erecting distributing stations, yet, every precaution should be taken to insure the plant against the probability of fire.

The problem of fire protection after the station is completed should then be considered. Fires are of two kinds—those that could have been prevented and those that could not have been foreseen.

To prevent the occurrences of fires from ordinary means, metal containers should be placed at all stations to hold waste matter and oily rags, and further by not permitting employes who handle petroleum products to smoke while in the course of their employment. All buildings should be supplied with ample fire fighting apparatus, consisting of sand pails, large and small hand extinguishers, hose reels, and in many cases a number of the larger extinguishers of 40-gallon capacity and over. A complete fire alarm system should also be installed. Volunteer fire fighting units should be organized at the larger and more important stations. The plan of organization should contemplate the stimulation and development of interest on the part of each employe by giving each an active part in the unit, either as member or substitute, and by holding regular fire drills. These drills should be called often and all the units in the field frequently inspected by the division manager or other officials of the company.

Other Hazards

Considerable thought should also be given to the probability of fire due to so-called static, dynamic currents and lightning. This should be considered a part of the building program. Grounding devices should be installed at all loading platforms and all service stations.

Fire protection should also be provided by placing small hand extinguishers on all automotive equipment and 2½-gallon capacity extinguishers at each of the service stations. Thus, adequate fire-fighting apparatus is provided for the protection of the employes and the products involved.

A good method whereby the drivers of tank trucks, stake trucks and even salesmen, are constantly impressed with safety is by placing before them a form of "Reminder Card." This card should not be over 3"x6" and should be printed in various colors and include thoughts, suggestions or safety hints. A small metal card holder could be attached to the dashboard of each vehicle and the card (which is changed each month) placed in the holder. Thus, constantly reminding the driver of the safe way in handling his vehicle and the products of the company.

Since the stopping at all railroad crossings has become a national topic, it would seem that other companies would see to it that their drivers come to a full and complete stop before crossing any railroad crossings. This can best be done by having every driver sign a form of "pledge card" or by placing a small sign on the rear of his vehicle reading: "This vehicle will come to a complete stop before crossing railroad tracks."

The work of accident prevention benefits both the employer and employe. Under Workmen's Compensation Laws the employer is compelled to pay compensation to employes who sustain accidental injuries during employment. The money paid out because of accidents that could have been prevented, in either compensation, medical or hospital expenses, represents a dead loss, and adds to the cost of marketing products. The employe in turn receives only part of his wage plus the suffering. This condition does anything but increase the efficiency of the organization.

Accident prevention work presents itself as a practical solution of this industrial problem and operates to increase the efficiency of the employe to stimulate the whole of the organization.

VENEZUELA CRUDE TO PORT ARTHUR JANUARY

HOUSTON, Tex., Oct. 6.—Advices received here state the Venezuela-Gulf Co. has a well in Maracaibo Lake, flowing 5,000 bbls. of clean oil at 1,888 feet. It was drilled by a crew from the Gulf Coast regions. The well was completed in 60 days actual drilling time, whereas previous wells in Venezuela have required about one year to complete. These have been drilled by Canadian rotary crews. The American crews say they expect to finish wells within 20 days drilling time, now that they are familiar with the formations and approximate depths of the producing sands.

Another report says the Venezuela-Gulf Co. anticipates shipping crude to the Port Arthur refinery after January 1 next.

TO DRILL IN EAST AFRICA

The decree issued to Jose Joaquim de-Morias, Caixa Pstal 113, Lourenco Marques, gives him the sole right to drill for petroleum in Portuguese East Africa, between the latitude of 24 degrees and 26.50 degrees. Work must be begun within three months of the grant, and the concession is for two years.

COPPER is the anti-toxin for sheet metal rust. Properly proportioned, it puts into steel for tanks and sheet metal products a new measure of endurance and resistance to rust that cannot be attained without its help. Experience proves that

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High grade roofing plates, carefully manufactured in all details. Also American Coke and Charcoal Bright Tin Plates.

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VENEZUELAN FIELDS NOW PRODUCING AS MUCH OIL DAILY AS KANSAS

By Michael O'Shaughnessy

The Royal Dutch group of companies had just taken over and started development work on the Vigas and Valadares concessions in the Maracaibo Basin in Venezuela when the World War broke out in 1914. The same group about that time also took over the development of the Aranguren concession of the Venezuelan Oil Concessions, Ltd.

The Royal Dutch group deserve the greatest credit for their courage and persistence in this development under the unprecedented difficulties of getting materials and men for such an undertaking during the war. Results obtained were on the whole disappointing, except at Mene Grande, until December, 1922, when the Barroso No. 2, one of the greatest wells in oil history, came in at La Rosa flowing wild a million barrels in nine days and sanded up.

A short time afterward, 50 miles to the westward on the opposite side of the lake, the great La Paz well was successfully completed at a depth of 752 feet, brought under control and capped. I apply the word "great" advisedly to this hole, for when I saw it on August 28, last, oil was boiling in the cellar under the derrick floor and spurting in fine jets from every bolt holding the valve to the casing. She was opened up recently to fill the sumps with oil for the boilers of the second well, drilling just to the north, and flowed at the rate of 20,000 bbls. of oil per day of asphalt-paraffin base, said to be about 30 gravity.

Commercial Development

The commercial development of the Venezuelan oil fields can be said to date from January 1, 1923. The following statistics of operation from the beginning of active development to the end of that year and up to September 1, 1924, when analyzed and compared, will tell a vitally interesting story to those who guide the destinies of the great organizations of the oil industry and to those interested in their securities:

Wells abandoned (failures to Dec. 31, 1923		49
Wells producing:		
Carribbean Pet. Co.	20	
British Controlled Oilfields, Ltd.	15	
	—35	
Wells completed as producers but capped Dec. 31, 1923:		
Colon Development Co.	5	
New England Oil	2	
Standard	1	
V. O. C., Ltd.	4	
	—12	
Total successful		47
Wells drilling Dec. 31, 1923:		
British Controlled Oilfields, Ltd.	4	
British Equatorial-Lago	2	
Carribbean Pet.	13	
Colon Development	2	
New England	3	
Standard	9	
V. O. C., Ltd.	4	
Beacon-Sun	4	
	—	41
Situation as of September 1, 1924, follows:		
Wells abandoned (failures)		51
Producing wells:		
Carribbean	25	
B. C. O., Ltd.	21	
V. O. C., Ltd.	6	
	—52	
Producers capped:		
B. C. O.	7	
Lago	2	
Gulf (Creole)	1	
V. O. C.	2	
New England	3	
Standard	1	
Colon	5	
	—20	
Total successful		72
Wells drilling:		
Carribbean	12	
V. O. C.	8	5 setting up
Lago	3	2 setting up
Gulf	4	1 setting up
Colon	2	
British Controlled	4	3 setting up
Standard	12	
New England	4	
Beacon-Sun	3	
	—	52

Comparison:

	Dec. 31, '23	Sept. 1, '24	Increase
Failures	49	51	2
Producers	47	72	25
Drilling	41	52	11

2 wells abandoned December 31, 1923, 1 by Standard and 1 by the Beacon-Sun.

Two Important Fields

As interesting as these figures are, they by no means tell the whole story. During the period under review, two of the most important oil fields in any country have been proven. Nine wells, completed at depth under 2,000 feet in the La Rosa Field—six by the V. O. C., Ltd., two by Lago and one by the Gulf on the Creole Syndicate's Superior lease—are good for 1,800 to 5,000 bbls. per day through ½ to ¾-inch chokers; no failures. No intelligent estimate can be made of the size of these wells flowing free.

After the experience with the discovery well Barroso No. 2 they will be pinched in for some time until more is known of this oil sand. On the west side of the lake, at Concepcion, in many respects the most interesting well in the basin was brought in. Four oil sands were encountered, tested and produced above the 1,030-foot mark. The test of the sand from 940 to 1,030 feet filled the sumps with 2,000 bbls. of 40 gravity oil —beautiful, dark olive green.

Another fact worthy of note is that two American companies, the Gulf and Lago Petroleum, have come into important production within a year of going into the field. Let it be further understood that regardless of the production or consumption figures of the oil industry in the United States, the Venezuelan oil fields are being rapidly developed, that the movement is gaining momentum and that there is a vast area available, offering just as attractive possibilities as the La Paz or Concepcion sections did a year ago.

Equals Kansas Production

Production for the year 1923 was 4,332,420 bbls., all but about 8,000 bbls. from the Mene Grande Field. The British Controlled Oilfields, Ltd., shipped one, the first, small tanker on Christmas Day, 1923. Production for the six months ending June 30, 1924, was 2,881,500 bbls., still principally from the Mene Grande Field. These figures, the latest official obtainable, do not in any sense convey even an approximately correct idea of the present productivity of the basin. A fair estimate as of September 1 would be as follows: Mene Grande, 15,000 bbls.; La Rosa, with the wells pinched in as at present, 30,000 bbls.; El Mene, 7,500 bbls.; Menito, 1,000; La Paz, 20,000 bbls., and Concepcion, from the known sands, an additional 10,000 bbls., or over 80,000 bbls. per day, which is substantially greater than the present production of North Texas and about the same as the State of Kansas. It should be noted that offset and new wells are drilling in all these fields in proven areas.

A new 6-inch pipe line is being run from El Mene to Alta Gracia, a 6-inch line is being run from Punta Piedras on the lake to Concepcion, and 4-inch line from there to La Paz. The Caribbean Petroleum Co. is adding additional tankers of 22,000 bbls. carrying capacity to its fleet, Lago is rushing work on steel storage and loading racks at La Rosa, while its subsidiary is providing eight 18,000-bbl. tankers, and the Gulf will have its ocean-loading terminal on Paraguana Peninsula ready to receive oil around the first of the year.

The Caribbean Petroleum Co.'s refinery at San Lorenzo, capacity 2,000 bbls. of crude oil per day, has been rounded out and is producing gasoline, kerosene, gas and fuel oil. The same company's plant at Curacao has been increased to a capacity of 20,000 bbls. of crude per day and a cracking unit is being added. The Lago company is preparing to build a 1,000-bbl. topping plant at La Rosa.

Geological work and surveying continue on a large scale. The drilling of several exploratory wells is being watched with intense interest as success will prove up new areas or extend the present fields. These will be treated fully as the various fields are described in detail.

The managements of the various companies operating in Venezuela are more than satisfied with the fairness of the petroleum law of that country and with the attitude of the Government toward them and working conditions on the whole are qute satisfactory.

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OLD FRIENDS

WANTED—The address of Pet Huffman, who drilled a well on Yates farm, Effingham County, Ill., several years ago. I last heard from Mr. Huffman in the Ranger and Desdemona oil fields. Anyone knowing the whereabouts of Mr. Huffman will confer a favor by notifying E. A. Keith, P. O. Box 331, New Martinsville, Ill.

IMPORTANT

Anyone knowing the whereabouts of S. H. Toothman, oil field driller or contractor, communicate at once with Ward H. Toothman, 313½ East Sixth Street, Okmulgee, Okla.

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COUNTY MAPS of any county of States of Missouri, Kansas, Arkansas and Oklahoma, 25c. Adams Engineering Co. Oklahoma City, Okla.

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Geological Oil Map of the new San Juan Basin Oil Fields of New Mexico. Shows producing areas on Indian Reservation. Structure contours—coal areas—gas fields—drilling wells, etc. Sells locally for $1.00, sent absolutely free to Journal readers. Write for it today.
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PETROLEUM OPERATOR and engineer, with over 25 years' practical experience in most of the productive fields and a recognized petroleum authority in America and Europe, offers services as consulting engineer or active executive position with an independent company or firm. Has an unusually extensive and valuable acquaintance and successfully financed many large enterprises. Highest class technical and commercial credentials. Negotiations will be strictly confidential. Petroleum Operator, care The Oil and Gas Journal, Tulsa, Okla.

EXPERIENCED ROTARY driller and familiar with core barrel work, with several years experience in fields of States and have had some experience in foreign work. Would like work either domestic or foreign. Can furnish good references. Box A-434, The Oil and Gas Journal, Tulsa, Okla.

WANTED—If you have money that you want to work for you, investigate my proposition. I have choice block of leases, about 3,000 acres, near other wells drilled and drilling; on good structure; will give interest in all leases and let you use the money to see that it is spent only in drilling, and not for promotion. I hold proof that there is large oil field here. Investigate. R. W. Dykes, Box 466, Winnsboro, Texas.

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FOR SALE—Complete modern skimming plant, 2,500-bbl. capacity on 19.12 acres fee land. Situated on long right of way W. F. & N. W. Railroad, Grand field, Okla. Will be sold at Sheriff's Sale, Court House, Frederick, Okla., November 6, 1924. For information, write P. O. Box 1893, Tulsa, Okla.

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oil and gas showing at about 900 feet. Salesmen wanted. R. W. Dykes, Box 466, Winnsboro, Texas.

WANTED contractor to drill two 900-foot wells in Wyoming. Easy drilling. Have tools, 28 Star rig, furnished camp on lease. References required. Address G. M. Kyle, Burlingame, Cal.

ANSWER OF THE TEXAS CO. IN CRACKING SUIT

(Continued from Page 45)

each other, not only as refiners and marketers of petroleum, but as licensors under their respective patents.

Contract No. 55

This is a contract between The Texas Co. and Gasoline Products Co., dated January 26, 1923. The Gasoline Products Co. was known to this defendant as the owner of the Cross Cracking Process, and prior to March, 1922, the Cross Cracking Process was understood by this defendant to consist of a high pressure digestion chamber in combination with a circulatory type of heating coil connected to the digestion chamber at both ends. Previous to this time, this defendant had perfected and developed at great expense the cracking process known as the Holmes-Monley Process, in which one or more stills are supplied with oil to be cracked through a coil which is connected to the still or chamber only at its outlet end. In other words the coil was of the type generally known as the "once-through" coil and this defendant believed its Holmes-Manley Process to be superior to the circulatory type process.

On or about March, 1922, a descriptive pamphlet issued by the Kansas City Laboratories on the subject of the Cross Process came to the attention of this defendant and it then appeared that the Cross Process, as then being licensed by the Gasoline Products Co., involved the once-through coil principle and other improvements indicating that development work done by Gasoline Products Co. on the Cross Process had in important respects paralleled the development work of this defendant.

About the same time one of the important pending applications of this defendant became involved in interference proceedings and it became apparent to this defendant that its extensive cracking operations would be jeopardized and that it might be subject to large losses if the interference should terminate adversely to it.

Ellis Patent

About the same time Ellis patent No. 1,415,232 was granted to the Standard Oil Co. (New Jersey) covering broadly certain aspects of the once-through coil and drum type of process and suit was brought by the Standard Oil Co. (New Jersey) against one of the licensees of the Gasoline Products Co. under the Cross Process.

This defendant was then faced with the proposition that if the Ellis patent should be sustained and held to be infringed by the Cross Process, in that event this defendant's operations, involving the coil and drum arrangement, would be subject to attack. Moreover, this defendant believed the Cross Process, operating on the once-through principle, to be an infringement of its issued patents.

This defendant, convinced that the patents and pending applications owned by it and those owned by the Gasoline Products Co. were overlapping and in conflict, entered into Contract No. 55, in order to avoid delay, uncertainty of litigation and the probability that one or the other of the parties might be subjected to heavy damages if the cracking operations of each proceeded to expand while the question of validity or infringement, and priority of invention was tried out in the United State Patent Office and in the courts.

It was not entered into for the purpose of, nor did it have the effect of, restraining trade and commerce among the several States and foreign Nations in gasoline, kerosene and other hydrocarbon products, but on the contrary this contract was entered into in good faith, for the purpose of adjusting and compromising the respective claims of each party against the other, it removed an element of uncertainty from the industry, it protected this defendant in its own refining operations, protected its licensees, and protected the licensees of Gasoline Products Co. under its patents. Gasoline Products Co. was then and has since then continued to be actively engaged in the business of licensing refiners under its patent rights, and its freedom to continue that business has not been interfered with by the contract, but on the contrary has been greatly increased because by reason of the contract Gasoline Products Co. is free to license its process and apparatus and at the same time to grant immunity as against claims for infringement by this defendant and by the other primary defendants in this cause.

Contract No. 73

This contract, dated September 28, 1923, between Standard Oil Co. (New Jersey), The Texas Co. and Standard Oil Co. (Indiana) was a contract pursuant to which the three parties waived, as against the others, damages for infringement, and received each from the other immunity for their own operations and for the operation of their licensees.

As hereinbefore recited, this defendant had acquired the patent rights of Joseph H. Adams and had expended large sums of money in developing a process and apparatus and in erecting plants and equipment for using the process. After this process had been perfected by this defendant one George T. Rogers brought suit in the Supreme Court of New York against Adams and this defendant, in which he alleged that he was the owner of a 40 per cent interest in the Adams patent rights by reason of an advance made by him to Adams in 1907. It developed at the trial of the cause that Standard Oil Co. (New Jersey) had acquired the claim of Rogers. Upon trial of the cause judgment was rendered by the Supreme Court in favor of Rogers, who was the nominal plaintiff, but actually in favor of Standard Oil Co. (New Jersey) which was the assignee of Rogers.

By this decree it was adjudged that Rogers owned an undivided 40 per cent interest in Adams' basic invention and in all means, methods, processes, apparatus and products devised or to be devised by Adams in developing and perfecting the same, including all of the letters patent which had issued to Adams or for which he had pending applications, either in the United States or in foreign countries, including Argentine, Australia, Brazil, Chile, Colombia, France, Eucador, Great Britain, India, Italy, Mexico, New Zealand, Rhodesia, Spain, Turkey, Union South Africa and Canada. It was further decreed that both Adams and this defendant should assign to Rogers the aforesaid interest in all of said patents and patent applications, and should pay to Rogers a like interest i nall moneys or other valuable considerations which had been or might be derived by them from the use of the inventions, and that this defendant should further pay to Rogers 40 per cent of all gains, savings and profits derived by it from the use of said inventions. An appeal was taken to the Appellate Division in the City of New York and the decree of the Supreme Court was affirmed. This defendant had made large profits from the use of said inventions; the performance of the decree would have been very expensive to it and would have been utterly ruinous to Adams, who had spent his life in the development of his inventions.

Basis of Settlement

In addition to this, Standard Oil Co. (New Jersey) owned certain patents and patent rights covering certain phases of the cracking process, its principal patent being Ellis patent No. 1,396,999, and it had sued the Pure Oil Co., a licensee of Gasoline Products Co., alleging an infringement of the Ellis patent by the use of the process and patent rights of Gasoline Products Co. It was deemed advisable by this defendant to make a settlement with the Standard Oil Co. (New Jersey), the owner of the judgment in favor of Rogers, and accordingly this contract was made and by it the case of Rogers versus Adams was disposed of, the rights of Rogers in and to the Adams patent were assigned to this defendant, the case of the Standard Oil Co. (New Jersey) against the Pure Oil Co. was withdrawn, and litigation which would have been of long duration, of great expense and great detriment to the oil industry was compromised. This agree-

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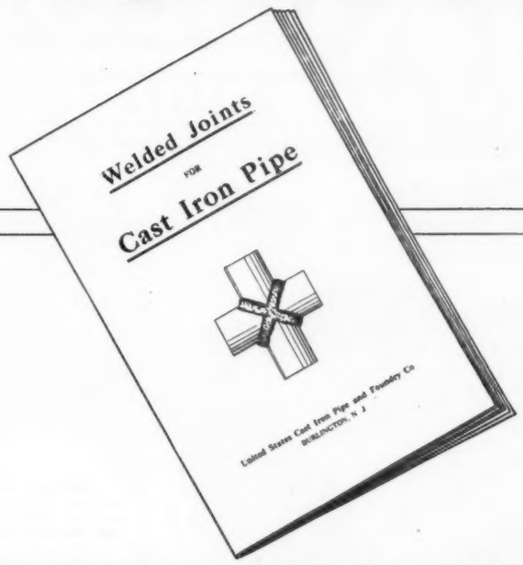

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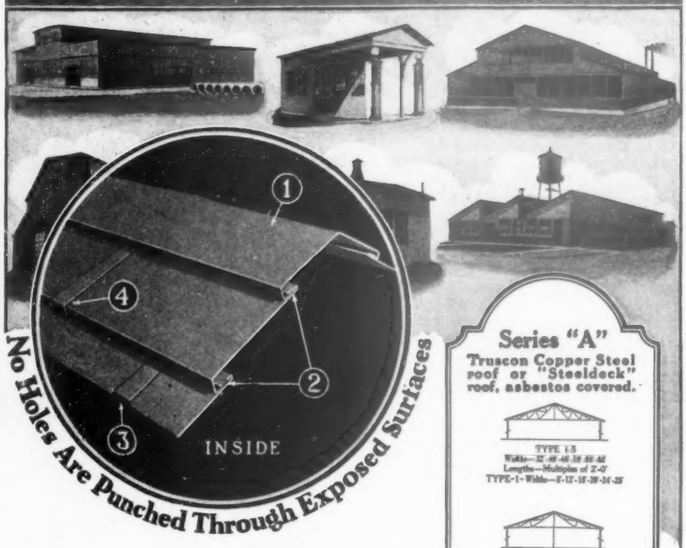

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ment was entered into in good faith, for the purpose of adjusting and compromising the respective claims of each party against the other, and, in addition to disposing of this litigation, the parties exchanged immunities under their respective patent rights. As the Standard Oil Co. (New Jersey) was a licensee of Standard Oil Co. (Indiana) and as this defendant and Standard Oil Co. (Indiana) had made the contract numbered 31 hereinbefore mentioned, in which this defendant had guaranteed the title to the Adams patents, it was necessary for all three companies to be parties to this agreement. By the agreement no restraint of trade and commerce was imposed, each of the parties remained free to license its own process as it pleased, each party is free to use its own process or that of the other as it may from time to time decide is the most economical, and each is free in licensing its own process to grant immunity to its licensees under the processes and patent rights of the other.

Contract No. 74 and Contract No. 77

These two contracts relate to the foreign patent situation and are incidental to the main contract hereinbefore referred to. They were entered into because it would be foolish to litigate over patent rights in foreign countries which were identical with those respecting which a compromise had been made in United States.

KANSAS FIELDS

(Continued from Page 76)

more completions than were reported the previous week, although the number of drilling wells declined 26. On the latter date, the total of 421 operations included 42 locations, 66 rigs up, 155 wells drilling, 123 wells shut down and 31 completions. The total represented an increase of 20.

Greenwood County

In Greenwood County, the Derby Oil Co.'s No. 13 Moss, CNL NW, Section 30-25 9, was spudding.

The Braden Brothers were drilling at 1,160 feet in their No. 3, NW cor. NE, Section 34-22-13. Smith & McGinnis were rigging up a machine for their No. 1 Wright, SW cor. NW, Section 32-24-13.

Milligan and others had a rig in place for their No. 2, C NW SW SE, Section 22-22-11. The Tidal Oil Co. was rigging up its No. 2 South, C NE SE SW, same section, and the Phillips Petroleum Co. was drilling its No. 1 SW cor. same section, at 1,700 feet. The York State Oil Co.'s No. 8, C NE SE SW, Section 32-22-11, was shut down at 1,000 feet.

M. A. Buck and others were drilling their No. 1 Pixlee, SW cor. NW NW, Section 10-22-10, at 560 feet. The Transcontinental Oil Co.'s No. 1, SW cor. NW SE, Section 2-23-9, was drilling at 1,780 feet.

The Mid-Kansas Oil & Gas Co. had a rig in place for its No. 12 Martindale, SW cor. Section 32-23-10.

Fontaine and others' No. 1, NE cor. SE NE, Section 27-24-9, was estimated good for 30 or 40 bbls. from sand at 2,148-2,200 feet. It was having casing trouble and total depth was 2,202 feet. H. Hoover and others plugged their No. 1 Hoover, SE cor. NW, Section 29-24-9, as a duster at 2,902 feet.

Roth & Faurott's No. 1 Biskett, CNL NE SW, Section 12-25-8, was shot with 21 quarts in pay sand at 2,219-31 feet, total depth 2,263 feet, and responded with 60 bbls. Pierce and others were drilling their No. 2 Jackson, CEL NE NE, Section 21-25-8, at 1,680 feet.

Hayes & Roberts abandoned their No 6 Ladd, CEL SW SW, Section 17-25-9, as dry at 2,460 feet. The Mid-Kansas Oil & Gas Co. was drilling its No. 8 Ladd, CSL SW, Section 19-25-9, at 1,400 feet.

Another failure was recorded by the Franklin Oil Co.'s No. 14 Dalton, CSL SE SE, Section 11-24-12, which was abandoned at 720 feet. The Skelly Oil Co.'s No. 2 Johnson, SE cor. NE SE, Section 15-24-12, was good for 70 bbls. after a 100-quart shot in sand at 1,740-68 feet.

The Transcontinental Oil Co.'s No. 1, SW cor. NW SE, Section 2-23-9, had 1,700 feet of fluid in the hole from sand at 2,345-2,405 feet. About 30 per cent of it was water. The Derby Oil Co. was spudding its No 1 Teeler, SE cor. SW, Section 36-23 9.

The Mid-Kansas Oil & Gas Co.'s No. 11, SW cor. SE SW, Section 31-23-10, had 800 feet of fluid in the hole from sand at 2,287-2,364 feet and it was to be shot. Same company was spudding No. 12, SW cor. same section.

Roth and others were spudding their No. 4 Cartwright, NE cor. Section 1-24-9.

Cowley County

In the Eastman district of Cowley County, the Empire Gas & Fuel Co.'s No. 1, NE cor. NW, Section 6-31-6, found sand at 2,867-72 feet, good for 677 bbls. the first day, but also containing a lot of water. The second day's gauge was 400 bbls. and only 40 bbls. on the third day, after which the well went dead and had to be put on the pump, making 97 bbls. of oil and 50 bbls. of water. The Southwestern Petroleum Co.'s No. 8 Eastman, SW cor. SE NE, same section, was good for 3,000,000 feet of gas and 125 bbls. of oil natural from sand at 2,848-80 feet. The White Eagle Oil & Refining Co.'s No. 1 Sanborn, SW cor. NW SW, Section 30-30-6, had 2,300 feet of oil in the hole but no gas from sand at 2,890 91 feet.

In the Rainbow Bend area, the White Phillips Co. was building a rig for No. 1 Johnson, C NE NE SE, Section 9-33-3, and the Alcorn Oil Co. was also building a rig for its No. 2 Wood, SE cor. NE NE, same section. A rig was also being erected for No. 2 Wright, C SW NW NW, Section 10-33-3. No. 1, C SW SW NW, same section, was spudding.

In Sumner County, the Howarth Oil & Gas Co. was rigging up its No. 1 C SW SE NE, Section 15-35-1.

Osage County

In Osage County, Baker and others were drilling their No. 1, C SE SE, Section 3-15-15, at 700 feet.

In Chase County, J. A. Corbett and others were drilling at 450 feet in their No. 1 Brandly, NE cor. SE NE, Section 21-22-8.

The Jennings Brothers were drilling at 260 feet in their No. 1, CEL SE NW, Section 4-21-12. Swartz and others had a rig on the ground for their No. 1 Jones, CSL SE, Section 31-21-12.

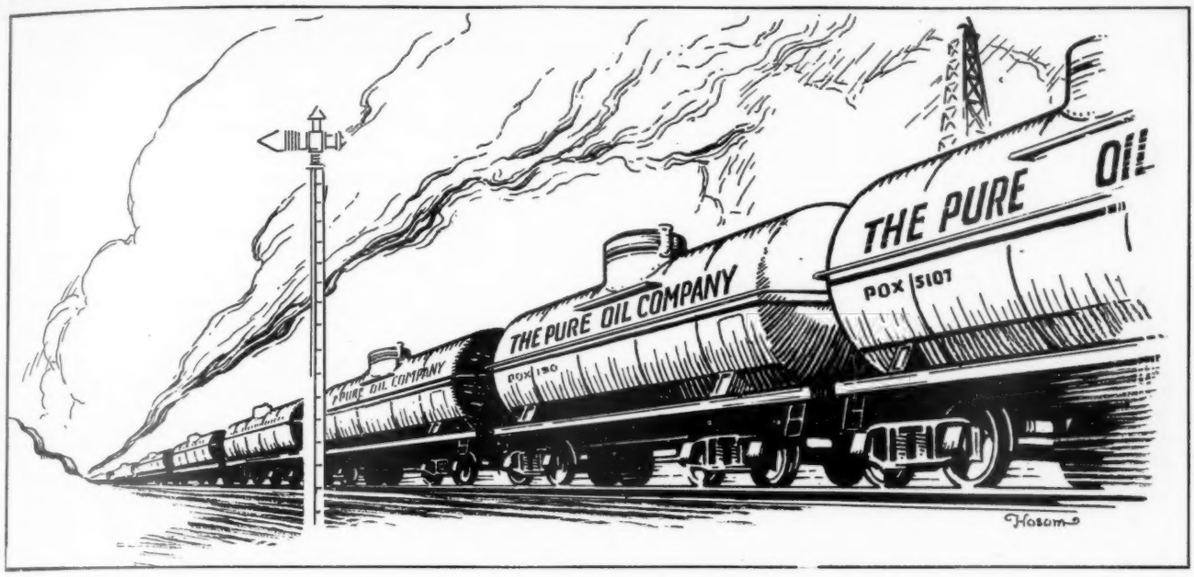
Oswald Field

In the Oswald Field, Russell County, the Stearns & Streeter's No. 1, SE cor. SW SW, Section 8-12-15w, was pumping 250 bbls. from lime topped at 2,943 feet and drilled to 2,987 feet. A rig was built for the same company's No. 2, C NE SW SW, same section. The M. M. Valerius Oil & Gas Co.'s No. 2, SW cor. SE SW, same section, was pumping 200 bbls. from the lime pay at 2,963-3,018 feet. This well may increase 50 or 100 bbls. when it cleans itself out. The same company's No. 2, NE cor. NW NW, Section 17-12-15w, was pumping 125 bbls. daily from lime pay at 2,950-3,000 feet. And No. 1, NE cor. NW, same section, was making the same amount of oil as No. 2, the pay having been found at 2,992-3,048 feet. All of this oil is 41 degrees gravity except in the Stearns & Streeter well, which is 34 degrees.

OLD GUADALUPE WELLS BEING WORKED OVER

LULING, Tex., Oct. 4.—Many old wells in Guadalupe County section of the Luling Field are being worked over under the supervision of M. T. Danley of the Texas Oil and Gas Division of the Railroad Commission, being plugged back for the purpose of shutting off the flow of water that has been so detrimental to production. Wells worked over include one of the old Marine wells, which was making around 3,000 bbls. of oil before being plugged. It is now producing 600 bbls. of oil, which shows only about 8 per cent water.

Wells of the United North and South Oil Co., on the Allen & Marines, will be plugged back immediately, as well as those of the Grayburg Oil Co. It is thought that plugging the wells will increase the daily production of the field considerably, as well as complying with the conservation rules of the State.



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Independent and successful, through unvarying high quality in all products.

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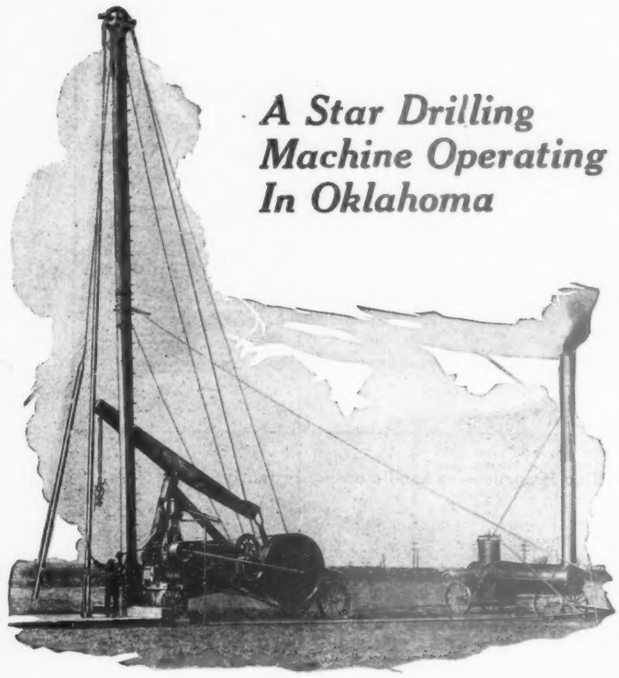


A Star Drilling Machine Operating In Oklahoma

Much Standard Rig Work Now Done by Stars

"Our No. 27 Star, 1918 make, is running as steady as a clock and doing the work of a big standard rig at 2,700 feet in a very hard formation.

"Twice recently we have had to fish out two entire strings of tools—sending down the third to get them out. The tools we are using are all heavy standard tools—one 10-foot solid Reamer weighing over a ton.

"Many standard rig men who have visited us and looked over our outfit were astonished at what this machine was doing in this hard lime and flint formation."

Signed B. A. ATKINSON,
Spring Creek and Luckey, Oklahoma.

More and more oil men are making the discovery that Star machines are practical and economical for the deeper drilling. They are finding that Stars can easily handle jobs they once thought required a standard rig.

Figuring the time and money saved, in moving and rigging up Star Portable Rigs must appeal to the practical driller from every standpoint. Derrick timber costs and rig builders' wages are entirely cut off.

THE STAR DRILLING MACHINE CO.,
AKRON, OHIO
Branches at Chanute, Kansas, Long Beach, Calif., Portland, Oregon.
Export Office—2 Rector Street, New York City.

68 PER CENT OF UNITED STATES CRUDE OUTPUT COMES FROM 31 POOLS

One major pool was added to the list of those producing an average of 15,000 bbls. a day for a period of a month, when Richland, Navarro County, Texas, developed an average of 18,487 bbls. a day during August. In January there were 24 such pools in the United States, but since that time two pools in California, three in Oklahoma and two in Texas have been added bringing the number to 31 which in August produced 1,387,777 bbls. of crude or 68 per cent of all the production in the United States.

The decline in some of the major pools from their peak of production is quite pronounced particularly in the case of California pools. Santa Fe Springs had fallen from 314,662 bbls. in September, 1923, to 57,987 bbls. in August, 1924. Huntington Beach declined from 113,228 bbls. in April 1923 to 41,642 bbls. in August, 1924. Long Beach dropped from 244,527 bbls. in October, 1923, to 149,033 bbls. in August, 1924.

A study of the table will show that while 14 fields show an increase in production in August, as compared with February, 17 fields show a decline, but the increased production of the 14 fields more than offsets the decline in the other 17. Fields with an increased production were Midway-Sunset, Torrance, Elk Hills, Coyote, Kern River, Montebello and Dominguez in California; Tonkawa, Stroud and Cromwell in Oklahoma; Richland, Electra and Luling in Texas, and Smackover, Arkansas. The declining fields have been Long Beach, Santa Fe Springs, Huntington Beach and Coalinga in California; Salt Creek, Wyoming; Burbank, Bristow, Cushing, Hewitt, Healdton and Graham-Fox in Oklahoma; Powell, Mexia, Currie, Holliday, Hull in Texas and Haynesville, Louisiana.

The September report on a few of the fields which have been coming to the front in the past summer will show a decline as compared with August, Cromwell and Stroud in Oklahoma will be among these, while Tonkawa, Oklahoma, will show a further gain and a very considerable one and so will Dominguez in California.

No new pools will be added to the list in September and it is probable that one or two may be dropped.

Following is the list of pools:

THE MAJOR POOLS OF THE UNITED STATES

Giving the Production of the 31 Pools Averaging 15,000 Bbls. per Day in August, and the Production for Six Months

AVERAGE DAILY PRODUCTION IN JULY OF THE 30 LEADING POOLS IN THE U. S.

	March Bbls.	April Bbls.	May Bbls.	June Bbls.	July Bbls.	Augu Bbls.
California—						
Midway-Sunset	97,313	99,137	104,308	108,240	106,362	104,9
Long Beach	196,922	175,844	166,854	159,512	154,162	149,0
Santa Fe Springs	86,540	72,713	69,351	61,049	59,562	57,9
Huntington Beach	55,906	51,362	48,584	46,073	43,232	41,6
Torrance	37,683	54,801	57,538	57,229	57,308	56,1
Elk Hills	38,358	36,697	36,857	38,909	38,350	41,0
*Coyote	4,065	15,325	18,814	18,830	19,567	20,2
Kern River	18,433	19,266	18,478	18,693	18,504	18,6
Coalinga	30,360	37,175	36,030	32,869	32,715	34,7
Montebello	16,849	16,624	16,745	16,717	16,778	16,9
*Dominguez	3,848	7,229	8,587	9,534	16,761	23,5
Wyoming—						
Salt Creek	99,500	95,595	92,780	91,009	90,176	87,4
Oklahoma—						
Burbank	99,378	105,864	87,024	91,819	84,246	78,6
Bristow	47,534	45,666	43,411	44,187	43,114	46,5
Tonkawa	35,720	35,291	35,211	36,674	37,443	39,7
Cushing	24,175	24,410	24,716	23,981	23,902	23,0
Hewitt	19,825	19,769	20,727	19,879	19,173	18,5
Healdton	16,166	16,769	16,710	16,575	16,466	16,0
*Graham-Fox	17,452	20,062	18,905	16,866	16,712	15,0
*Stroud	4,463	5,944	16,456	22,716	18,114	13,1
*Cromwell	4,660	6,540	16,570	25,719	46,317	66,9
Texas—						
Powell	124,847	117,157	103,106	93,491	85,764	79,3
Mexia	33,809	32,955	30,612	28,718	28,838	30,1
Burkburnett	26,676	20,499	20,019	19,634	18,594	19,8
Holliday	27,178	33,616	33,851	31,143	31,658	29,3
*Richland	.....	350	779	4,311	13,298	18,4
Electra	19,335	20,123	20,711	21,079	21,334	21,6
Hull	24,984	22,084	18,385	18,998	21,040	21,6
*Luling	20,750	28,850	38,300	46,200	48,089	44,6
Arkansas—						
Smackover	104,814	113,265	140,127	142,242	131,644	124,9
Louisiana—						
Haynesville	19,806	16,715	18,481	18,363	18,616	19,1
Total	1,351,289	1,367,696	1,379,027	1,384,774	1,376,314	1,387,7

*Added to "leading fields" since January.

Carload of Gasoline Used in Operation Of ZR-3 Over Ocean

The ZR-3, the reparations Zeppelin built by Germany for the United States at the Friedrichshafen factory, is in type and design a commercial airship. Her length is 656 feet, diameter 90.66 feet and height 101,.68 feet. Her hydrogen capacity is 2,472,000 cubic feet. The makers have availed themselves of an experience of more than 20 years to produce the safest and most dependable Zeppelin; in the series which her completion closes by the requirements of the Versailles Treaty her number is 126. Hereafter such dirigibles, containing the features of the inventors, will be constructed by the Goodyear-Zeppelin Corporation of Akron, Ohio. With what is practically a monopoly of helium gas the United States will be in a position to develop the commercial dirigible without serious competition.

Compared with the Shenandoah, the latest Zeppelin is manageable. It is claimed that she carries the first reversible gasoline motors put into a dirigible. Gears, as in automobiles, have been hitherto used to reverse the propellers. Before reaching a landing place it was necessary to reduce speed, and this exposed the great fabrics to sudden gusts of wind. ZR-3 should be able to sail at good speed beyond her landing place, reverse engines and make an easy and safe descent with aid from the ground. Her five motors, each of 400 horsepower, have given a good account of themselves in her trials in Germany. O. D. Tolischus, a Friedrichshafen authority, estimates her mean speed at 60 miles an hour. There has been an innovation in attaching the cabin solidly to the keel well toward the front. In the forepart is the control room, "like the bridge of a yacht," with controls and telephone lines leading aft. This arrangement should make for simpler and securer navigation. In her appointments and conveniences for crew and passengers ZR-3 is said to be an advance upon Shenandoah. The latter is about 20 feet longer and makes as fine an appearance in the air. ZR-3's carrying capacity, exclusive of fuel (35 tons of gasoline, 10,600 gallons, or more than a coarload), is about 15 tons. For six months the Navy will have charge of the new Zeppelin, after which she is to be turned over to the army for the same period.

The Government will probably use her to carry the mails. ZR-3 will be an experiment in commercial aeronautics, really the first of the pioneers in this country.

Backed by 48 years oil field experience

Almost two generations of Service and Experience.

A record of achievement that can be pointed to with great pride.

B & S Standard Type Oil Country Boilers are designed and built in strict accordance with the A.S.M.E. Boiler Code.

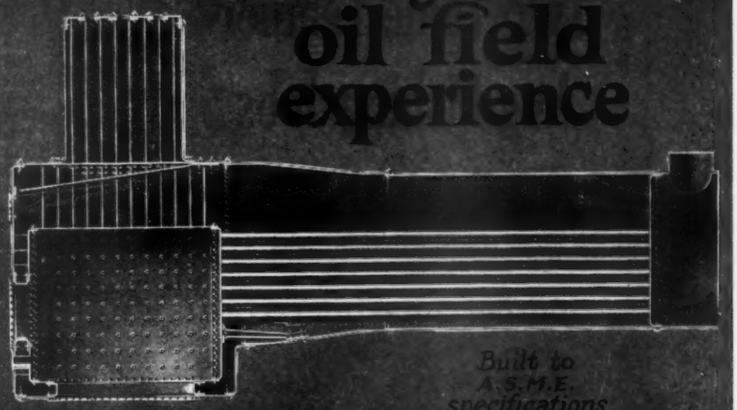
All plates of B & S Boilers are open hearth homogeneous steel of fire box and flange quality.

Horizontal seams of the barrel and connection sheet are triple riveted.

Surely, you need a Boiler that is powerful and rugged in *all its details.* Then specify B & S Boilers.

Write for circular No. 15 that explains more fully.

BOVAIRD & SEYFANG MANUFACTURING COMPANY
Bradford, Pa.



Built to A.S.M.E. specifications

The Bovaird & Seyfang Drilling Boiler

also carried in stock by Republic Supply Co. stores and Bovaird Supply Co. stores

THE 5-IN-1 SECTIONAL CONDENSER

The G-R Sectional condenser for condensing hydrocarbon vapors and other vapors can be used for five different purposes—a big item in reducing refining equipment costs:

1—for standard condensing operation.

2—as a reflux condenser.

3—for as many different "cuts" or "fractionations" as desired.

4—as a combined heat exchanger and condenser.

5—for additional capacity by simply adding more sections.

Send the coupon for complete information

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THE GRISCOM-RUSSELL COMPANY
94 West Street, New York City
Gentlemen:—Please send copy of your form 198.
O&GJ-10-9-24

One Devil's Steel Hand Two Underreamer Lug Fishing Jobs

Both Jobs Cleaned Up on First Run!

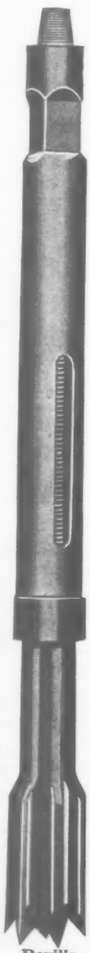
—another amazing record!

Devil's Steel Hand

On March 23, J. M. Hickey, of the Cactus Oil Co., drilling at Colorado, Texas, lost a lug off a 5 3-16" Swan Underreamer. This was the second job of underreaming in this hole for this size. Hickey had fished the other job out with a Devil's Steel Hand, so of course knew what to do in this case. He came into Breckenridge, got a Devil's Steel Hand and fished the lug out the first time he went into the hole.

Having a 3-day rental period, Hickey didn't bring the tool back until the 26th. Just as he got back to the Brown Welding & Machine Co. shop at Breckenridge, George Callahan of Albany, Texas, came in looking for a tool to fish the same-sized underreamer lug. He also got his lug the first time in the hole!

To clean up two underreamer lug fishing jobs in two oil fields in five days with but one run in each hole is a record that we are proud of even for the Devil's Steel Hand. You simply can't beat these tools for quick and successful fishing. Immediate shipments—write us for full details.



Devil's Pitchfork

BROWN

WELDING and MACHINE COMPANY

Main Office and Factory: Breckenridge, Texas
Rental Branch: 310 E. 3rd St., Tulsa

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CLARION COUNTY, PA., EXCITED OVER GASSER

OIL CITY, Pa., Oct. 4.—A miniature McKeesport gas excitement has broken out at old Helen Furnace, in Clarion County, and within a few weeks there has been a rush to "get in the sand" before the other fellow.

Dr. F. P. Phillips and Robert Lamberton, of Franklin and Oil City, and Henry Neuland, of Clarion, are responsible for this old town's awakening, having drilled several good wells one-fourth to 1 mile northeast of the present gusher producer. The gas is obtained from the Hundred-Foot sand which is about 900 feet deep and the wells produce anywhere from 100,000 to 1,500,000 feet per day. The production is readily disposed of to the United Natural Gas Co. and the Alum Rock Co.

Within a week the following wells have been completed: United Natural Gas Co. No. 1 R. A. Smathers farm; Henry Arnold Nos. 1 and 2 on the 1-acre of W. H. Wise farm. Marble & Barr's Nos. 1 and 2 on the 5-acre farm of Charles Davis and No. 3 is drilling on this plot. S. W. Wilson is drilling his sixth well on his own property. Lamberton, Phillips & Neuland, 4 miles west, on the William McKinsley farm, and some Oil City parties have leased the Davis heirs farm, about 1 mile due south, and are hauling in the rig.

The United Natural Gas Co.'s well on the Smathers farm is showing some oil from the Hundred-Foot sand. This well is the most southerly located and the test on the Davis heirs' farm may show some real oil territory.

There are about 20 wells, or will be when finished, on about that many acres.

EXHIBITION DATES FOR SAFETY PICTURE

The safety picture, "Live and Let Live," now being shown in the oil fields of Louisiana and Arkansas under the auspices of the Petroleum Safety Council of the Mid-Continent Oil & Gas Association, is creating much favorable comment from the field employes and executives. Its itinerary in southern Arkansas and northern Louisiana is as follows:

Louann, Ark., Oct. 9—Don C. Wilson, Lion Refining Co.
Camden, Ark., Oct. 10—Lloyd Tabb, Houston Oil Co.
Stephens, Ark., Oct. 11—C. R. Smith, Arkansas-Invincible Oil Co.

Following is a list of committeemen appointed to serve at various points and dates where the picture will be shown in Oklahoma:

Sapulpa, Oct. 13—J. W. Bowman, Sinclair Pipe Line Co.; O. A. Rinehart, Skelly Oil Co.; C. C. Fuller, Eastern Oil Co.; A. J. Snyder, Tidal Oil Co.
Kiefer, Oct. 14—Otto Peters, Chestnut & Smith; J. J. Donovan, Gypsy Oil Co.; A. W. Smith, Tidal Oil Co.; J. F. O'Donnell, Prairie Oil & Gas Co.
Drumright, Oct. 15 — Earl Hobson, Victor Gasoline Co.; J. E. Paleston, Sinclair Pipe Line Co.; E. D. Smith, Magnolia Petroleum Co.; O. W. Dutton, Frick-Reid Supply Co.
Shamrock, Oct. 16 — George Dangerfield, Magnolia Petroleum Co.; C. C. Crockett, Cosden Oil & Gas Co.; E. L. Wetherbee, Carter Oil Co.; Frank Schmoe, Shaffer Oil & Ref. Co.
Cushing, Oct. 17—Howard Hines, Magnolia Petroleum Co.; G. A. Sprague, Skelly Oil Co.; J. T. Bramlette, Tower Gasoline Co.; George Waltershausen, Shaffer Oil & Ref. Co.
Yale, Oct. 18—W. M. Stump, Roxana Petroleum Co.; B. H. Tucker, Marland Pipe Line Co.; George Shaw, Yale Oil Corp.; L. T. Brown, Tower Gasoline Co.
Oilton, Oct. 20—E. L. Wetherbee, Carter Oil Co.; T. A. Newton, Twin State Oil Co.; F. W. Young, National Products Co.; John Veach, Prairie Oil & Gas Co.
Cleveland, Oct. 21—J. P. Patton, Roxana Petroleum Corp.; E. L. Wetherbee, Carter Oil Co.; C. L. Bradbury, Tidal Oil Co.; O. J. Bachman, Prairie Oil & Gas Co.
Hominy, Oct. 22—Tom Kinney, Sinclair Pipe Line Co.; Ute Adair, Amerada Petroleum Corp.; A. R. Peters, Marland Refining Co.; E. F. Ewing, Riverland Co.
Pawhuska, Oct. 23—J. B. Drake, Marland Refining Co.; J. M. Stubblefield, Indian Territory Illuminating Oil Co.; E. E. McCollum, Phillips Petroleum Co.; L. G. Stanley, Prairie Pipe Line Co.
Barnsdall, Oct. 24—J. W. Williams, Barnsdall Oil Co.; Arthur A. Odell, Barnsdall Refining Co.; T. L. R. Mallams, American Oil Development Co.; W. R. Downey, White Eagle Oil & Ref. Co.
Shidler, Oct. 25—D. H. McCarthy, Prairie Oil & Gas Co.; W. L. McCormick, Gypsy Oil Co.; C. F. Knollenberg, Twin State Oil Co.; C. E. Drewry, Black, Sivalls & Bryson.
DeNoya, Oct. 27 — Earl McBride, Roxana Petroleum Corp.; W. R. Darling, Tidal Oil Co.; P. A. Robberson, Marland Refining Co.
Ponca City, Oct. 28—Ray Miller, Marland Refining Co.; R. B. Wasson, National Supply Co.; E. H. Beard, Frick-Reid Supply Co.
Tonkawa, Oct. 29—P. E. Shoemaker, Amerada Petroleum Corp.; J. T. Brown, White Eagle Oil & Refining Co.; W. S. Mallben, Phillips Petroleum Co.
Three Sands, Oct. 30—G. H. Hasen, Gypsy Oil Co.; E. C. Wilbur, Marland Refining Co.
Garber, Oct. 31—W. C. Ribb, Carter Oil Co.; J. B. Oakley, Roxana Petroleum Co.; B. Hurley, Cosden Oil & Gas Co.; W. E. Hiltner, Rabbits Foot Oil Co.
Enid, Nov. 1—Chas. C. Peppers, Pepper Gasoline Co.
West Tulsa, Nov. 4 and 5—H. W. Hogue, Sinclair Co.; J. D. Iams, Gypsy Oil Co.; G. H. Hannum, Cosden Oil & Gas Co.; J. H. Wolfe, Prairie Oil & Gas Co.; R. J. Lauder, Roxana Petroleum Corp.
Jenks, Nov. 6—N. T. Clark, Eastern Oil Co.
Bixby, Nov. 7—R. L. Mann, Selby Oil & Gas Co.; Clarence Hoges, Frank Brewer, Percie Dill, Eastern Oil Co.
Haskell, Nov. 8—L. F. Cragg, Roxana Petroleum Corp.; Chas. Girrich, Tidal Oil Co.; Otis Fowler, Selby Oil & Gas Co.; E. H. Nedderman, Kanola Oil & Ref. Co.
Muskogee, Nov. 10 — Chas. Sills, Tidal Oil Co.; Chas. Bender, Moon Gasoline Co.; William B. Kearney, Sinclair Pipe Line Co.
Boynton, Nov. 11—Alvie LeGate, Cosden Oil & Gas Co.; J. J. Connors, Carter Oil Co.
Okmulgee, Nov. 12—J. M. McNally, Sinclair Pipe Line Co.; H. L. McQuinten, Wm. Phillips Co.; Neal Evans, Amerada Petroleum Corp.; D. L. Tully, Prairie Pipe Line Co.
Henryetta, Nov. 13—J. C. Alexander, Phillips Petroleum Co.; W. S. Black, Black, Sivalls & Bryson; W. F. Beal, Waite Phillips Co.; O. R. Black, Mitchel Oil Co.
Okemah, Nov. 14 — Glen Harroun, Roxana Petroleum Co.; Cecil Branscum, Frank L. Moore; Ray Thomas, Bradford Rig & Reel Co.; C. E. Humphrey, Williamsport Wire Rope Co.
Cromwell, Nov. 15—C. H. Hunt, Superior Oil Corp.; Glen Dawley, Mid-Kansas Oil & Gas Co.; W. F. Bell, Waite Phillips Co.; R. M. Tucker, H. F. Wilcox Oil & Gas Co.
Tulsa, Nov. 17—H. W. Boggess, Sinclair Co.; J. D. Iams, Gypsy Oil Co.; G. H. Hannum, Cosden Oil & Gas Co.; R. J. Lauder, Roxana Petroleum Corp.
Skiatook, Nov. 18—P. P. Garriton, Superior Oil Corp.; W. H. Myers, Savoy Oil Co.; John Crumrine, Bergen Oil & Gas Co.; Chas. Mayabb, Sinclair Pipe Line Co.
Nowata, Nov. 19—C. F. Gray, Sinclair Pipe Line Co.; W. E. Sloan, Carter Oil Co.; R. A. Dunn, Phillips & Milam; C. A. Cope, Prairie Pipe Line Co.
Bartlesville, Nov. 20—C. R. Wolford, Prairie Pipe Line Co.; J. W. Chinn, Wiser Oil Co.; B. G. Barbee, Phillips Petroleum Co.; W. H. Stewart, Indian Territory Illuminating Oil Co.
Dewey, Nov. 21—C. I. Layton, Tidal Oil Co.; C. C. Jack, Foster Petroleum Corp.; S. L. Watt, Wiser Oil Co.; E. F. Howshire, Eastern Oil Co.

OFFICIAL REVIEW OF MEXICAN PETROLEU

WASHINGTON, D. C., Oct. 4—The latest available information on the present petroleum development in Mexico is contained in the official review of the Mexican Treasury Department, just received in this city.

The number of permits for drilling during August was largely in excess of activities for July. The production in May, 1924, exceeded by 1,500,000 barrels the production of the same month of the previous year, but the exports for June 1924, were about 400,000 barrels short of such exports for June, 1923. The export tax collected in June, 1924, was only $47,000 less than in the same month of 1923.

The official review gives the figures as follows:

Number permits granted in August for the drilling of new wells.....
Number granted in July.....
New wells brought in during August.....
New wells in July .....

The largest of these wells has a potential daily capacity of 2,690 barrels.

Total oil production for May, 1924 (bbls.)	12,981,...
Exportation, May, 1924 (bbls.)	12,615,...
Production for May, 1923 (bbls.)	11,481,...
Total taxes on exports collected in May, 1924	$4,006,974...
Total taxes collected on production in May, 1924	$3,778,532...
Total (Mex.)	$7,781,706...
Equivalent to gold	$3,890,853...
Total oil exports in June, 1924, (bbls.)	10,934,0...
Total export taxes collected in June, 1924 (Mex.)	$3,819,94...
Equivalent to gold	$1,909,97...
Total oil exports for June, 1923, (bbls.)	11,336,7...
Total export tax collected June, 1923 (Mex.)	$2,912,68...
Equivalent to gold	$1,956,34...

In May, 1924, 438 vessels conveyed cargoes of petroleum from Mexico to foreign ports, of which 277 were American, 121 English and 40 various other nationalities. In June, 1924, 391 vessels carried oil cargoes of which 278 were American, 73 English and 40 various other nationalities.

—C. F. K.

Top of "Tex"

He Estimates That "Tex" Will Save Nearly $36,000

Do you know why the cost of producing oil is so great? Have you ever analyzed your pulling expense? We know a man who did, and this is what he found out:

Of 485 Rod Jobs

75.25% were due to Worn Out Cups.
9.07% were due to Parted Rods.
11.55% were due to Balls and Seats.
4.13% were due to Paraffine.

This man tried a "Tex" Barrel in a well which was regularly pulled twice weekly. It has now pumped 150 days with but one pulling, having saved approximately 40 Rob Jobs. What is the answer? He now puts a "Tex" in every well he drills, and replaces the old barrel with a "Tex" in every wheel he pulls. Last year his pulling expense for cups alone was $36,000. Too much! Next year he will save the greater portion of that amount because he is now using "Tex" everywhere.

Why not try a "Tex" in your WORST well? Why not at least get complete information from us regarding this remarkable working barrel?

"Tex"

BRADFORD MOTOR WORKS
Bradford, Pa.
Branch Factory & Warehouse—Tulsa, Okla.

"Tex"

Bottom of "Tex"

GENERAL AMERICAN TANK CAR CORPORATION

Pioneers in Tank Car Service

1900————1924

QUALITY SERVICE PERMANENCY

Our permanency established through our record of twenty-four years of satisfactory service to shippers under all conditions at any and all times.

Our fleet of over twelve thousand Tank Cars enables us to deliver promptly at any time or place, the equipment to meet your particular needs.

Long or short time leases at reasonable rates

Call on us for your requirements, whether building new cars, leasing, repairing or rebuilding

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17 Battery Place NEW YORK | 311 California St. SAN FRANCISCO, CALIF. | 707 Broadway LOS ANGELES, CALIF. | The Adolphus DALLAS, TEX. | 502 Cosden Bldg. TULSA, OKLA.

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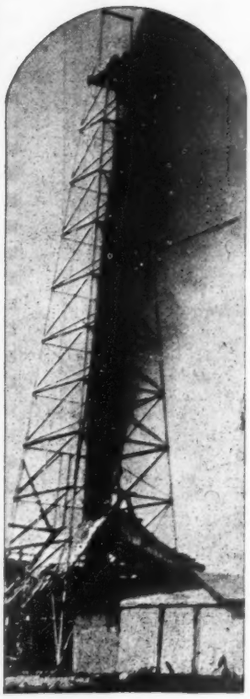

Oil Wells are not all Gushers

but—

A Columbus Sucker Rod on the pump makes any well "The nearest thing to"

Columbus Sucker Rods are insurance of steady pumping. Made of special tested steel, they stand the hardest wear. Proper machining insures a perfect fit. The special long tapered fillet eliminates breakage back of the wrench square.

At Your Dealer—or Write Us.

THE COLUMBUS SUCKER ROD COMPANY
COLUMBUS - OHIO

"Columbus Sucker Rods"

DRIVE TO INTEREST STOCKHOLDERS IN INCREASING SALES OF PRODUCTS

The Pure Oil Co. is making a drive to interest its stockholders in getting business for the company. Long recognized as an organization stressing the personal relationship between company and stockholders, it believes the cordiality of this relationship can be greatly enhanced if the 38,000 stockholders will become business getters. Increased sales, it is pointed out, have their due effect upon dividend checks, and "a word for the company is a word for yourself" might well be the slogan for the drive.

In an appeal to stockholders it is pointed out that each stockholder is directly interested in the company's success. To pay dividends, these dividends must first be earned. The company must sell its products to make the earnings with which to pay the dividends. The notice continues to advise that the company has the products, the established quality, backed by large production and adequate refining, transportation and marketing facilities, and that the stockholder as a partner in the business should be as much interested as any employe in its success. It is pointed out that many stockholders are interested in concerns which could use the company's products but are not doing so and that it is equivalent to a fair deal for the company and for the stockholder that the latter endeavor to swing the business for the company. Furthermore, every stockholder has friends in the community, people interested in business concerns, factories, garages and service stations, who, if urged, would give the company's products a respectful hearing, especially if the stockholder were a customer of the concern solicited. Moreover, nearly every stockholder is a motorist, and all are urged to use the company's products. If the dealer does not carry them, the stockholder is asked to urge him to do so and to send his name to the home office.

This is not the first time the Pure Oil Co. has enlisted the active business interest of its stockholders. Several years ago it developed a considerable volume of new business from leads given it by stockholders. The Pure Oil News of September, which was a special issue to stockholders, speaks of the stockholders' relation to the company as follows:

"There are nearly 38,000 share owners in the Pure Oil Co. who are really partners in the business. Such a vast number of share owning partners, working together, could develop a tremendous selling power. Assuming each is a motorist, their combined annual gasoline consumption alone exceeds 18,000,000 gallons. But each of these partners has other interests and relationships consuming gasoline and motor oil, as well as industrial lubricants and other petroleum products. It would be impossible to estimate the volume of such a potential business. And it is directly to the interest of each share owner to exert his influence in getting this potential business for Pure Oil.

"The sole owner of a business will go out of his way to develop that business. The shareowner's interest is no different, and the result is the same. Consider what it would mean to the Pure Oil Co. if every one of the 38,000 stockholders was actively interested in pushing the company products, as well as being financially interested. Should there be a difference between active interest and financial interest?

"Frequently letters are received at the general offices of the company from stockholders inquiring about petroleum products, or suggesting that orders or contracts are to be placed by some concern, with which he has relations, for a volume of gasoline, fuel or gas oil or lubricants. In a majority of instances, these have led directly to profitable business for the company. The number of stockholders doing this, however, represents an extremely small percentage of the vast army of investors who own and are affected by the success of the company.

"Once in a while an inquiry is received from a stockholder who wants to know what petroleum products the company makes or where the company products may be obtained. Occasionally stockholders have written about a site for a service station in their locality and suggested that the company should establish a direct marketing unit there. These evidences of interest on the part of stockowners are gratifying to the officers of the company. The regret is, that there are not more of them.

"Of course, it is not possible to locate a service station on the suggestion of every stockholder, even though the stockholder has made a careful analysis of the prospects and is thoroughly sound in his conclusions. It is necessary for developments in this direction to proceed on mature plans worked out with definite advantageous relations to the business as a whole. Such suggestions are welcomed, even invited, as investors of the class owning Pure Oil stocks have opportunities of presenting many propositions of value to the company.

"Several years ago the company sent out a suggestion to the stockholders that they send in a list of their requirements of petroleum products or have those business interests with which they might be associated send in such lists. A large volume of new business was developed as a result and many connections established that are still continuing satisfactorily to both parties.

"The Pure Oil Co. has grown to a position outstanding among the leaders of the oil industry. Its list of stockholders is an asset and a feature of strength.

"A stockholder has a right to be actively interested in the business of his company. Officials of Pure Oil often confer with pleasure to the number of stockholders who do show such an interest and express regret that they cannot have more interested contact with more of them."

The Pure Oil Co. has 7,500 employes, of whom about 4,000 are stockholders in the company. Employes are divided in the various departments as follows: 2,5[illegible] in the producing department; 1,300 in the refineries; 1,500 in the distributing department; 700 on the pipe lines and the remainder in various other departments.

The Ohio Cities Gas Co., which was the Pure Oil Co.'s predecessor, came into corporate existence on April 21, 19[illegible]. Organized primarily as a holding company largely for public utilities, with the discovery of the great Cabin Creek [illegible] less than two years later, it began to branch out in earnest in the petroleum business. This development was so rapid that by 1920, instead of being a utilities holding company, over 90 per cent of the business came from oil, and it was then deemed advisable to change the name to the Pure Oil Co. as more representative of the company's real activities. The final step came this spring when the company sold all its public utilities and is now purely an oil company in name as well as in fact.

A few comparative figures will better illustrate the company's growth. In 19[illegible] it had less than 500 employes, today it has 7,500. Then it had 3,237 stockholders, now it has 37,469. Its assets grew from $14,000,000 in 1914 to $[illegible],490,000 in 1924. Then it had a crude production of 350 bbls. a day, which is now more than 100 times greater. Then it did not have a refinery, now it has one with an aggregate daily capacity of 44,000 barrels. Then its business was confined to two States, today it has distributing operations in 26 States as well as in foreign countries. Then it had a few miles of pipe line, today its pipe lines total 2,675 miles and its storage capacity approximately 13,000,000 barrels. In transportation equipment it owns and operates a small ocean fleet, nearly 3,000 railroad tank cars and over 1,000 pieces of motor equipment. It has never missed a dividend and on June 1 had dispensed to its stockholders a grand total of $[illegible],806,80 in dividends.

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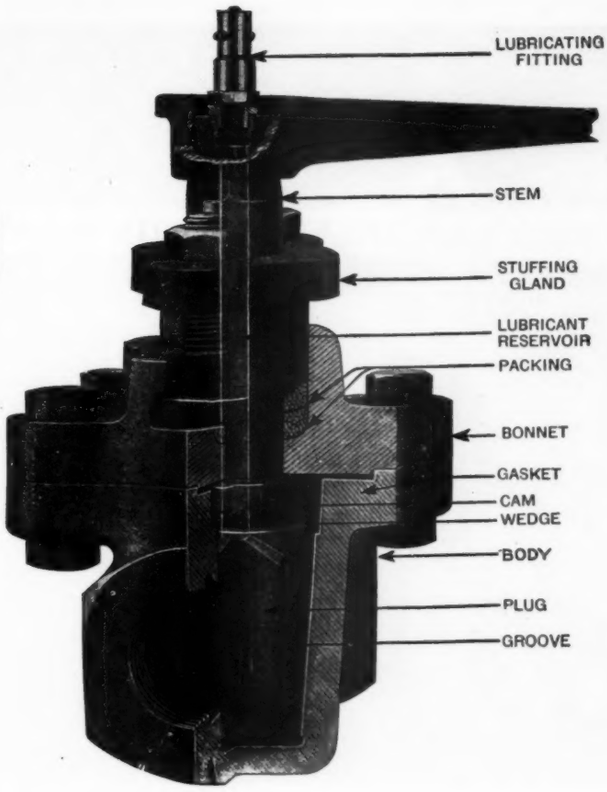

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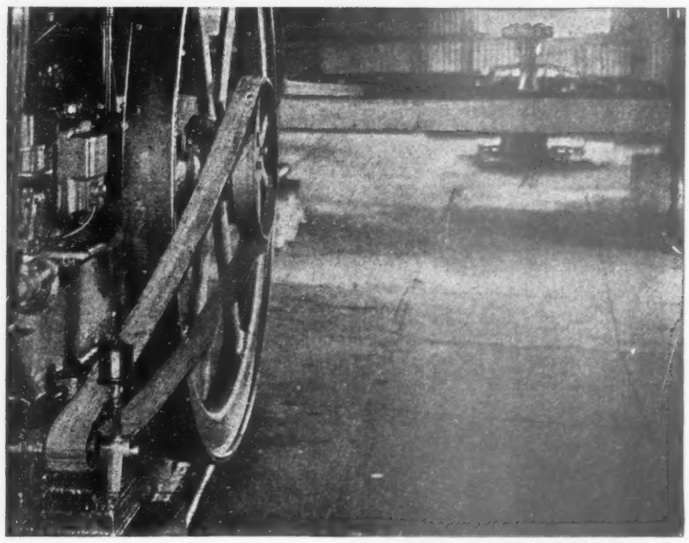

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GOODYEAR

AN INSPIRATION AND ITS GRAND RESULTS

(Continued from Page 78)

except the costly Argand, consuming two feet of gas per hour. These photometric experiments have given the oil a much higher value as an illuminator than I had dared to hope. * * * As this oil does not gum or become acid or rancid by exposure, it possesses in that, as well as in its wonderful resistance to extreme cold, important qualities for a lubricator. * * * It is worthy of note that my experiments prove that nearly the whole of the raw product may be manufactured without waste, solely by one of the most simple of all chemical processes."

Notwithstanding these researches, which he spent five months in prosecuting, the idea of boring for petroleum—naturally suggested by the oil in the salines of the Muskingum, Kanawha, Cumberland and Allegheny—never occurred to the learned professor. The "spring" was on the Willard farm, part of the lands of Brewer, Watson & Co.—Ebenezer Brewer and James Rynd, Pittsburgh; Jonathan Watson, Rexford Pierce and Elijah Newberry, Titusville—lumbermen on Oil Creek. They ran a sawmill on an island near the east bank of the creek, at the bend in the stream, a few rods south of the boundary line between Venango and Crawford Counties. Close to the mill was the rusty-looking spring from which the oil to burn in smoky and chimneyless lamps and to lubricate the circular saw was derived. The following document explains the first action regarding its care and development:

"Agreed this fourth day of July, A. D. 1853, with J. D. Angier, of Cherrytree Township, in the County of Venango, Pennsylvania, that he shall repair up and keep in order the old oil spring on land in said Cherrytree Township, or dig and make new springs, and the expenses to be deducted out of the proceeds of the oil and the balance, if any, to be equally divided, the one-half to J. D. Angier and the other half to Brewer, Watson & Co., for the full term of five years from this date, if profitable."

All parties signed this agreement, pursuant to which Angier, for many years a resident of Titusville, dug trenches centering in a basin from which a pump connected with the sawmill raised the water into troughs that sloped to the ground. Small skimmers, adjusted to skim the oil, collected three or four gallons a day, but the experiment did not pay and it was dropped. In the summer of 1854 Dr. F. B. Brewer, son of the senior member of the firm owning the mill and "spring," visited relatives at Hanover, N. H., carrying with him a bottle of the oil as a gift to Professor Crosby, of Dartmouth College. Shortly after George H. Bissell, a graduate of the college, practicing law in New York with Jonathan G. Eveleth, called to see Professor Crosby, who showed him the bottle of petroleum. Crosby's son induced Bissell to pay the expenses of a trip to inspect the "spring" and to agree, in case of a satisfactory report, to organize a company with a capital of $250 000 to purchase lands and collect all the oil in the vicinity. On January 1, 1855, Brewer, Watson & Co. conveyed in fee simple to Bissell & Eveleth 105 acres of land in Cherrytree Township, Pennsylvania, embracing the island at the junction of Pine Creek and Oil Creek, on which the mill of the firm and the Angier ditches were situated, for $500 cash and notes for $4.500 in installments. On December 30, 1854, articles of incorporation of the Pennsylvania Rock Oil Co. were filed in New York and Albany. The stock did not sell, owing to the prostration of the money-market and the fact that the company had been organized in New York, by the laws of which State each shareholder in a joint-stock company was liable for its debt to the amount of the par value of the stock he held. New Haven parties agreed to subscribe for large blocks of stock if the company were reorganized under the laws of Connecticut. A new company was formed with a nominal capital of $300.-000 to take the name and property of the one to be dissolved and levy an assessment to develop the island by "trenching" on a wholesale plan. Eveleth & Bissell retained a controlling interest and Ashael Pierpont, James M. Townsend and William A. Ives were three of the new Haven stockholders. Bissell visited Titusville to complete the transaction, learned that foreign corporations could not hold lands in Pennsylvania and fresh complications ensued. To avoid trouble, on September 20, 1855, he and his partner executed a deed to Pierpont and Ives, who gave bond for its estimated value and leased the property for 99 years to a new company. Pierpont, an experienced mechanic, examined the outfit with a view to improve Angier's machinery. Silliman was elected president and the first bona fide oil company in the history of nations had been fully organized. Dissensions started again, Silliman resigned, Townsend took his place and things lay dormant for weary months.

An Inspiration and Its Results

One hot day in the summer of 1858 Mr. Bissell, standing beneath the awning of a Broadway drug store for a moment's shade, noticed a bottle of Kier's Petroleum and a queer label in the window, the advertisement of a substance which concerned him seriously. Stepping inside he asked to scan the label, which the dealer told him to take along. For an instant he gazed at the derricks and the figures—400 feet. The thought flashed upon him—bore artesian wells for oil. To put the idea to the test was the next problem. Eveleth agreed with Bissell, but funds were lacking and a Wall Street broker, J. Havens, counted out $500 for a lease at "12 cents a gallon for all oil raised for 15 years," which financial difficulties prevented his carrying out. President Townsend then employed Edwin L. Drake, conductor on the New York & New Haven Railroad, to whom he had previously sold $200 worth of his own stock in the Pennsylvania Rock-Oil Co., to go to Titusville and report. Inspecting the salt wells at Syracuse en route, about the middle of December, 1857, the pilgrim trundled into Titusville on the mail wagon from Erie, receiving a warm welcome and staying a week to study the general details. Returning by way of Pittsburgh, he saw the Tarentum wells and hastened home to submit a plan of operations. On December 30 the three directors residing in New Haven granted a lease to Edwin E. Bowditch and Edwin L. Drake subject to the payment of "9½ cents per gallon for the oil raised for 15 years," amended in January, 1858, to "one-eighth of all oil, salt or paint produced." The lease was sent to Franklin and recorded in Deed Book P, page 337. A supplemental lease, extending the time to 45 years on the terms given Havens, was also recorded and on March 22 the Seneca Oil Co. was organized, with Drake as president and owning one-fortieth interest.

With $1.000 as a starter and a contract to manage the work at a salary of $1,000 a year, early in May, 1858, Drake and his family reached Titusville and sojourned at the American Hotel, which boarded the parents, two children and a horse for $6.50 per week! Money was scarce, provisions were cheap, the high cost of high living had not materialized, the quiet hamlet sported no extravagant fads and none of its 200 denizens locked a door at night. Drake's first move was to repair and start up Angier's trenches, troughs and skimmers. By the end of June he had shipped 2 bbls. of oil to New Haven and bargained for a steam engine to furnish power for drilling. The engine was delayed, the "borer" Dr. Brewer hired in Pittsburgh clinched a better job and operations ceased for the winter. In a letter dated August 15, Colonel Drake—the military title came from Townsend's addressing him letters with the prefix—outlined the situation:

"In sinking our well last week we struck a large vein of oil, but the same thrust of the spade opened a vein of water that drove men out of the well, and I shall not try to dig by hand any more, as I am satisfied that boring is the cheapest. I should have had my borer here, but was not ready. * * * I have abandoned the idea of boring and pumping by water, as I could not have the exclusive right to the power, but must be subject to the sawyer, the turner and the blacksmith, so that after consulting the best salt and oil men at Tarentum I have contracted for an engine to be ready for boring by the first of September. I have got out the timber for my pump house and am having it framed today. We shall get it up this week."

A driller he engaged in February, 1859, not appearing in March, the colonel returned to Tarentum to lasso another who might keep faith and not fall by the wayside. F. N. Humes, cleaning out salt

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wells, informed him William A. Smith made the tools and would probably bore the well. Smith accepted the offer, manufactured the tools in his shop and on May 20 arrived with his two sons and the equipment at the spot selected for the test. A room for "boarding the hands" joined the rig and the sawmill.

Delays, Tribulations and Victory

Conformably to the customary rule, the Smiths dug a few feet, starting at the bottom of an old pit and intending to timber the hole down to hardpan. Water interfered and repeated cavings forced a retreat. Driving an iron tube through the clay and quicksand, suggested by Drake, proved effectual, reaching the rock at 36 feet, and drilling began on August 14. The crew averaged 3 feet a day, resting nights and Sundays, encouraged at times by symptoms of oil and figuring to equal the Tarentum depth by Christmas. Sickness drained his modest savings, the company grew tired of the delays and Titusville men endorsed Drake's paper for $600 to tide him over the crisis. The tools pursued the downward road and expectation stood on tiptoe to watch the trend of events. On Saturday afternoon, August 27, the well was 69 feet deep, in a coarse sand. Smith and his sons concluded to "lay off" until Monday morning. As they were about to quit the drill dropped 6 inches into a crevice, such as was common in salt wells. Nothing was thought of this circumstance, the tools were drawn out and all hands adjourned to Titusville. Mr. Smith went to the well on Sunday afternoon to see if it had moved away or been purloined during the night. Peering into the hole he saw fluid within 8 or 10 feet. A piece of tin spouting was lying outside. He plugged one end of the spout, let it down by a string and pulled it up filled with petroleum.

"Uncle Billy," not daring to leave the spot, ran the spout again and again, each time bringing it to the surface full of oil. A straggler out for a stroll approached, heard the story, sniffed the oil and bore tidings to the village. Darkness had set in, but the Smith boys sprinted to the scene. When Colonel Drake came down, bright and early next morning, they and their father were guarding three barrels of the precious liquid. The pumping apparatus was adjusted and by noon the well commenced producing at the rate of 20 bbls. a day. The problem of the ages was solved, the agony ended and petroleum fairly launched on its wonderful voyage on Monday, August 29, 1859, a date to be held in perpetual remembrance.

The surprising news flew like a Dakota cyclone or an American aviator, villagers and country folk flocking to the scene. Smith wrote to his former employer: "Come quick, there's oceans of oil!" Jonathan Watson jumped on a horse and galloped down the creek to lease the McClintock farm, where Cary dipped oil and a timbered crib had been constructed, the Rynd farm and tracts further up stream. William Barnsdall secured the James Parker farm, next above the Willard, to be operated by him, Boone Meade and Henry R. Rouse, who hurried from Warren to gain a foothold, Bissel, who had arranged to be posted by telegraph, bought all the Pennsylvania Rock Oil stock he could find and in four days was at the well. He leased farm after farm on Oil Creek and the Allegheny River, regardless of surface indications or the admonitions of meddling wiseacres. John L. and Foster W. Mitchell left their blacksmith shop at Enterprise to tie up the Buchanan lands, at the junction of Oil Creek and Cherry Run, the future site of Rouseville. Titusville seethed and sizzled and boiled over with excitement, people bought lots at $200 a throw, and buildings arose as if by magic, forerunners of the borough that blossomed into the attractive "Queen City" of 15,000 bustling inhabitants. Unluckily for himself, Colonel Drake took a narrow view of affairs. Complacently assuming that he had "tapped the mine"—to quote his own phrase—and that paying territory would not be found outside the company's lease, he pumped the well serenly, told funny stories and secured not one foot of ground. Money was not needed, the promise of one-eighth royalty satisfying the easy-going farmers, consequently he might have gathered in any quantity of territory.

Subsequent Scenes and Incidents

On the Parker farm, Barnsdall, Meade & Rouse immediately started the second well in the vicinity, getting 5 bbls. in November by pumping three days at 80 feet. Sadly disappointed, they shut down to recover breath, resumed drilling in December, noted better indications at 100 feet, put in tubing and bagged a 35-barreler on February 19, 1860, by June 1 selling 56.000 gallons of crude for $17,000. David Crossley's a short distance south of the Drake and the third finished in the neighborhood, began pumping on March 10 at the rate of 60 bbls. J. D. Angier booked to "stamp down a hole" for Brewer, Watson & Co., in a pit dug and cribbed to garner oil dipped from the "spring" on the Hamilton-McClintock farm. Piercing the rock by "hand power" was a tedious process. December of 1859 dawned without a shred of greasiness in the well, from which wondrous things were anticipated on account of the "spring." One day's hand pumping produced 12 bbls. of oil and so much water that an engine was required to pump steadily. By January 20, 1861, the engine was puffing and the well producing moderately, the influx of water diminishing the yield of oil. These four, with two getting under way on the Buchanan farm, north of the McClintock, and one on the J. W. McClintock tract, the site of Petroleum Center, summed up all the wells actually begun on Oil Creek in 1859.

Original Rig Destroyed

The Drake well declined to 12 bbls. by the close of the year, idle on Sundays and for a week in December, when the gas from a tank of oil caught fire from Smith's lantern and consumed the rig root and branch. One-third of its total output in 1859 of 1,873 bbls. went to Pittsburgh at 65 cents a gallon and George M. Mowbray, an accomplished chemist, who came to Titusville in 1859 and played a prominent part in early refining, marketed 1,000 bbls. in New York. The well produced mildly for two or three years from the first depth and stopped for while during 1860 by low prices, which made it a loss to pay the cash royalty. The Seneca Oil Co. retained part of the land as fee and surrendered the lease to the Pennsylvania Rock Oil Co. Mr. Bissell purchased the stock of the other shareholders in the latter for $50,000 and drilled 10 wells, six of which for months yielded 80 bbls. a day, on the tract known thenceforth as the Bissel farm, selling eventually to the Original Petroleum Co. The Drake well was deepened to 500 feet and two others, drilled beneath the roof of the sawmill in 1862, were pumped by water.

Disposition of Relics

The Drake machinery was stolen or scattered piecemeal. In 1876 J. J. Ashbaugh, of St. Petersburg, and Thomas O'Donnell, of Foxburg, conveyed the neglected derrick and engine house to the Centennial at Philadelphia, believing crowds would wish to look at the memento. The exhibition was a fizzle, and the lumber was carted off as rubbish. Lewis Emery, Jr., saved the drilling tools and he has them in his private museum at Bradford. Crossley's sons rebuilt the rig at their father's well in 1873, drilled the hole deeper and obtained considerable oil. Other wells around the Drake were treated similarly, paying a fair profit. In 1875 this spasmodic revival died out, machinery was removed and the derricks rotted. Jonathan Watson in 1889 drilled shallow wells, cleaned out several of the old ones and awakened brief interest in the cradle of developments. Not a trace of these operations remains. The Parker and neighboring farms northwest and north of Titusville proved disappointing, owing to the absence of the third sand which a hole drilled 2,300 feet failed to reveal. The Parker Farm Petroleum Co. of Philadelphia bought the land in 1865 and in 1870 a dozen wells were producing. West and southwest the Octave Oil Co. operated profitably for many years and Church Run has produced generously. Probably 250 wells were sunk above

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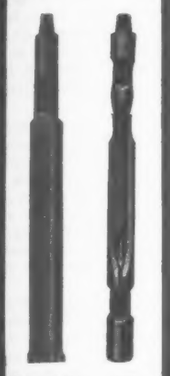
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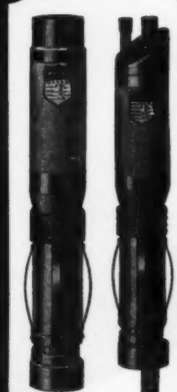
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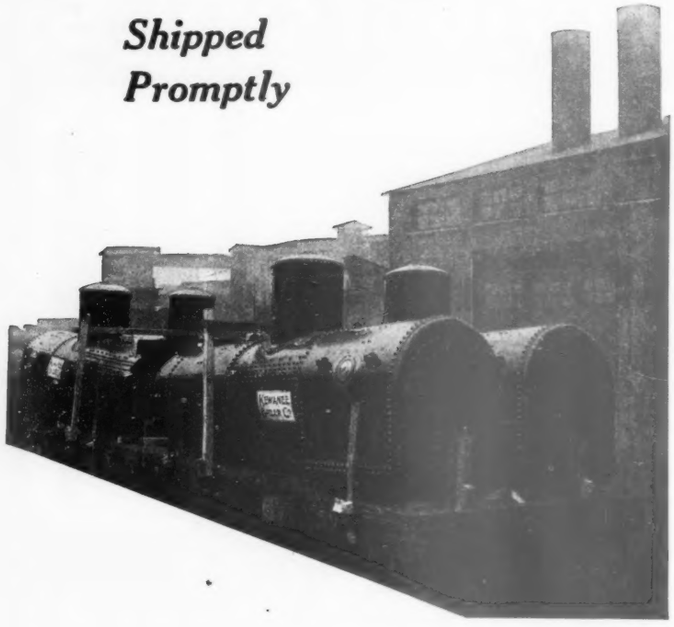

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Fort Worth, Texas **Ardmore, Okla.** **Denver, Colo.**

Casper, Wyoming **Great Falls, Mont.**

Branches in All Prominent Oil Fields

Titusville, at Hydetown, Clappville, Tryonville, Centerville, Riceville, Lincolnville and to Oil Creek Lake, in vain attempts to discover an extension of soul-satisfying territory.

David Emery was the last purchaser of the Drake well, which he proposed to pump and apply the proceeds of the sale of small vials of the oil towards the erection of a stately monument on the historic spot. His death, in the vigor of a stalwart manhood, thwarted the generous project, but his widow assigned the well and a plot of ground to a patriotic society of women for care and preservation. A massive granite block, appropriately inscribed keeps silent watch and marks the birthplace of the oil industry. Except that the trees and the saw mill have disappeared, the surroundings are about the same as when lumbering was at its height and no prophet had proclaimed that lands on Oil Creek would sell for more than corner lots in London or New York. The tools that drilled the Barnsdall, Crossley and Watson wells were the handiwork of Jonathan Lock, a Titusville blacksmith, who died at Bradford in 1895. John Bryan, who built the first steam engine in Warren County, Pennsylvania, started the first foundry and machine shop in Oildom and manufactured drilling tools at Titusville in 1860.

Within four years of Drake's humble strike petroleum was crowned financial king, dethroning cotton and yielding a revenue exceeding that from coal and iron combined. War raged, the old world sought to strip the republic of its gold, the United States exported mineral fat and kept the yellow dross on this side of the Atlantic.

Interfering With the Almighty

A solemn preacher in Crawford County tramped to Titiusville one day to relieve his burdened mind, cornered Drake on the street and wanted him to stop taking oil from the ground. "Do you know," he hissed, "that you're interfering with the Almighty Creator of the universe? God put that oil in the bowels of the earth to burn the world at the last day and you, poor worm of dust, are trying to upset His plans!" No wonder the loud check in the colonel's barred pantaloons wilted at this unexpected outburst, which Drake often recounted with extreme gusto, as he did that of the innocent rustic who, begging a canful of the green liquid, remarked as he strode off: "This'll be durned good spread onto buckwheat cakes!"

Three of the four initial wells were "kicked down" by the aid of the springpoles, as were hundreds later in shallow territory. This method afforded a mode of development to men of limited means, with heavy muscles and light purses, although inadequate for deep drilling. An elastic pole of ash or hickory, 12 to 20 feet long, was fastened at one end to work over a fulcrum. To the other end stirrups were attached, or a tilting platform was secured, by which two or three men produced a jerking motion that drew down the pole, its elasticity pulling it back with sufficient force, when the men slackened their hold, to raise the tools a few inches. The principle resembled that of the treadle board of a sewing machine, operating which moves the needle up and down. The tools were swung in the driving pipe or "conductor"—a wooden tube 8 or 10 inches square, placed endwise in a hole dug to the rock—and fixed by a rope to the spring pole 2 or 3 feet from the workmen. The strokes were rapid and a sand pump—a sprout 3 inches in diameter, with a hinged bottom opening inward and a valve working on a sidingrod, somewhat in the manner of a syringe—removing the borings, mainly by sucking them into the spout as it was drawn out quickly. Horse power was the next step forward and steam engines, employed for drilling at Tidioute in September of 1860, reduced labor and expedited work.

Had it been necessary to sink the Drake well to the Tarentum level, instead of 69 feet, the birth of the industry might have been postponed indefinitely. A strange coincidence was the completing and tubing at Tarentum on the same day, August 29, 1859, of a salt well drilled deeper in hope of disclosing a reservoir of oil. The well pumped 5 bbls. a day for a season, but was lost sight of in view of the greater revelation 100 miles northward.

TULSA GAS LITIGATION OVER OLD FRANCHISE

J. W. Underwood, City Attorney of Tulsa, has begun suit to establish the contract price of 25 cents per thousand feet for gas furnished by the Oklahoma Natural Gas Co. to consumers in Tulsa under the franchise granted the company in 1903.

The first round was won by the gas company in District Court before Judge W. B. Williams when judgment for $1,071.65 was awarded the company as due from the city for gas furnished from January 31, 1921, to October 30, 1922, at the rate of 42 cents.

When Underwood sought to introduce testimony to show that the gas company was operating under the Galey & Guthrie franchise granted by the city in 1908, the objections of attorneys for the gas company were sustained by the court when they pointed out that this franchise had already been declared unconstitutional by the Supreme Court in suits from other cities.

Underwood's contention and the point on which he will base his appeal to the Supreme Court, is that the Tulsa franchise was granted before statehood and is not affected by the constitutional provision which eliminates the later franchises, as there is a specific provision in the Constitution that none of its provisions are to affect existing obligatinos.

HIGH ROCK PRESSURE IN LIVE OAK GASSER

HOUSTON, Tex., Oct. 4.—Houston Oil has completed No. 5 Cartwright in southeast Live Oak County for a gas well of large capacity. The location is 2,400 feet southeast of No. 4, completed a month ago. Both holes were set with 8-inch liner to bottom of hole and gauged around 1,000 pounds rock pressure. No. 3, completed several months ago, is midway between No. 4 and No. 5, and was completed with smaller casing. No. 1 Cartwright is 500 feet south of No. 3.

These two earlier wells have been the principal source of fuel supply for drilling the other and larger wells, all of which were drilled to slightly lower depths and to a more prolific gas stratum.

Below this 1,000-pound rock pressure stratum is a thicker rock pressure around 1,200 pounds. Owing to the comparatively shallow depths of these wells it has been impossible to keep the heavy oxide of iron-mud in the holes when drilling below the full thickness of the 1,000-pound gas pressure stratum. This has made it practically impossible to determine the capacity of the next lower gas sands.

No. 5 well was permitted to blow and clean the hole slowly and steadily and after blowing an hour was closed in under perfect control. No. 2 will be deepened to one of the thicker and more prolific gas sands.

GOOD NEW YORK WELL

BOLIVAR, N. Y., Oct. 4.—Hardman, Thornton & Miller have completed their No. 35 on the Hazzard farm, Pleasant Valley district, which did a head of 100 bbls. when it was put to pumping. This well located between two floods, is the best well yet completed on this lease. There were 23 feet of sand, and, it is expected the well will settle to a 10-bbl. producer. The contractors, Cowles & Richardson, are moving their rig to a new location for No. 36.

A. L. Shaner has completed a good well on the Richardson farm at Koenerville. Mr. Shaner also has finished a fair producer on the Grineley farm, town of Bolivar. L. W. Shaner, contractor.

Dillie, Turner & Caryer have completed a flood well on the Shawmut lease at Eldred, Pa.

The "WHY" of It

Do drilling belts have to pick up a sudden load? Do they have to stand weather abuse—heat, cold and rain—day in and day out?

They certainly do!

Republic Driller and Pumping Belts are made from a special duck, woven to accommodate themselves to oil field clamps.

They are rubber covered to protect the duck, and stitched to help the friction when the sudden strain is applied in drilling or when the slow heavy pull is applied on powers.

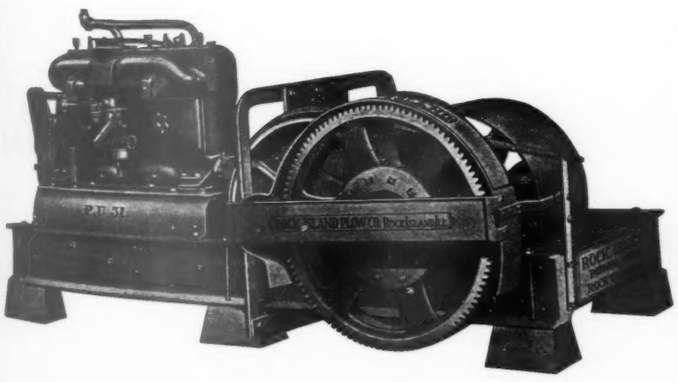
That is why Republic Belts give the best oil field service.

THE REPUBLIC RUBBER COMPANY
Youngstown, Ohio.

REPUBLIC BELTING

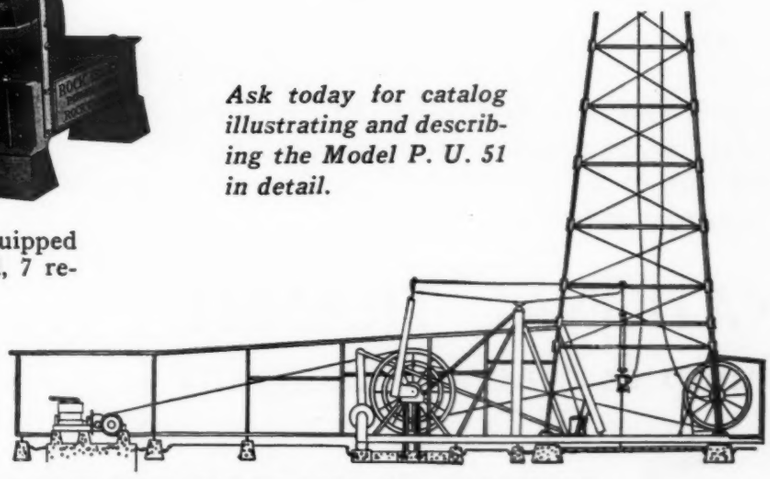
THE ROCK ISLAND PUMPING ENGINE

It Pumps—Pulls Rods and Tubing—Bails or Handles a Light String of Tools



Burns Natural Gas or Gasoline.
Complete control from Well Platform.
Built for the Job.
Sold on Performance.

Ask today for catalog illustrating and describing the Model P. U. 51 in detail.



Sturdy 4-cylinder motor, 25 h. p. capacity, equipped with friction transmission, 7 speeds forward, 7 reverse; require less attention from operator; less repairs, fuel and oil.

No reverse gears or jaw clutch to adjust or repair.

Simple construction, easily understood by average operator.

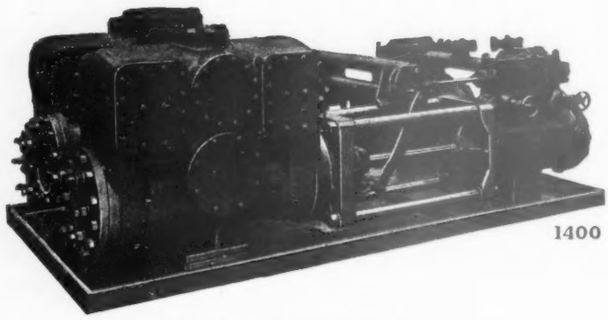
ROCK ISLAND PLOW COMPANY, ROCK ISLAND, ILLINOIS

P. O. Box 289 **C. F. Camp, Agency, Distributors** **Tulsa, Oklahoma, 311 Atco Bldg.**

IT must take a great deal of self-confidence to justify the selection of any but a TRANSIT pump for many refinery services.

It is true that most any pump will pump oil. But it is also true that few pumps will fit refinery service as well as TRANSIT pumps, because like refineries, they are built to handle oil and its products.

For example, consider our Block Valve Type Pumps, illustrated below. We know of several successful refinery superintendents who see to it that all hot tar, asphalt, residuum, and other heavy semi-liquids are handled through TRANSIT Block Valve Type Pumps. They are convinced that these pumps are built for just such work.



1400

12x9x18" Block Valve Pump with base plate drip pan, for 300 lbs. working pressure.

If you have to do with the selection of refining pumps, we will do everything we can to help you get the best pump for any condition.

NATIONAL TRANSIT
Pump & Machine Company
Oil City, Pa.

District Offices:

New York Philadelphia Pittsburgh Cleveland Tulsa Houston Denver

GULF PORT SHIPMENTS DECREASED DURING MONTH OF AUGUST

HOUSTON, Tex., Oct. 4.—The movement of refinery products and crude from Gulf ports during the month of August totals 13,401.798 bbls., a decrease of 880,705 bbls. compared with July.

Refinery products decreased 605,571 bbls. and crude shipments fell off 275,134 bbls.

The export consignments show an increase of 398 675 bbls. in refined and 148,429 bbls. of crude.

The following table gives the shipments in detail by each company:

FROM PORT ARTHUR
By The Texas Co.
Refined

Coastwise	1,339.629
Export	418,184
Total	1,757,813

Crude

Coastwise	424,885
Export	22,385
Total	447,270

FROM PORT ARTHUR
By the Gulf Refining Co.
Refined

Coastwise	1,624,939
Export	208,602
Total	1,833,541

FROM BEAUMONT
By Magnolia Petroleum Co.
Refined

Coastwise	*1,059,151

*Includes 269,031 bbls. mfg. fuel oil.

Crude

Coastwise	209,129

FROM SABINE
By the Sun Oil Co.
Crude

Coastwise	269,780

FROM SMITH'S BLUFF
By the Pure Oil Pipe Line Co.
Refined

Coastwise	162,754

Crude

Coastwise	703,339

FROM NECHES TERMINAL (Orange)
By Humble Oil & Ref. Co.
Crude

Coastwise	187,526

FROM PORT ARTHUR & SMITH'S BLUFF
By Atlantic Oil & Prod. Co.
Refined

Coastwise	10,672

Crude

Coastwise	887,776

FROM TEXAS CITY
By Humble Oil & Ref. Co.
Crude

Coastwise	1,153,706

FROM TEXAS CITY
By Mariand Refining Co.
Crude

Export	246,839

FROM BAYTOWN
By Humble Oil & Ref. Co.
Crude

Coastwise	310,010

FROM TEXAS CITY
By Vacuum Oil Co.
Crude

Coastwise	356,702

FROM TEXAS CITY
By Swiftsure Petroleum Co.
Crude

Coastwise	126,044

FROM HOUSTON
By United Central Oil Corp.
Crude

Coastwise	305,000

*For account of Atlantic Ref. Co.

FROM BATON ROUGE (Refinery)
By Standard Oil Co. of Louisiana
Refined

Coastwise	1,538,262

Crude

Coastwise	415,066

SUMMARY

Water Shipments of Refined and Crude from Gulf Ports During Month of August, 1924

Company and Port—	Refined	Crude	Total
The Texas Co., Port Arthur	1,757,813	447,270	2,205,083
Gulf Refining Co., Port Arthur	1,833,541	.....	1,833,541
Magnolia Petroleum Co., Beaumont	1,059,151	209.129	1,268,280
Sun Oil Co., Sabine	.....	269,780	269,780
Pure Oil Pipe Line, Smith's Bluff	162,754	703,339	866,093
Humble Oil & Ref. Co., Neches Terminal	.....	187,526	187,526
Atlantic Oil Producing Co., Port Arthur and Smith's Bluff	10,672	887,776	898,448
Humble Oil & Ref. Co., Texas City	.....	1,153,706	1,153,706
Humble Oil & Ref. Co., Baytown	.....	246,839	246,839
Vacuum Oil Co., Texas City	.....	310,010	310,010
Swiftsure Petroleum Co., Texas City	.....	356,702	356,702
Mariand Refining Co., Texas City	.....	126,044	126,044
United Central Co., Houston	.....	305,000	*305,000
Standard of Louisiana, Baton Rouge	1,428,418	1,538,262	2,966,680
Standard of Louisiana, New Orleans	.....	415,066	415,066
Totals for August	6,242,349	7,159,449	13,401,798
Totals for July	6,847,920	7,434,583	14,282,503
Difference	605,571	275,134	880,705
Exports			
The Texas Co., Port Arthur	418,184	22,385	440,569
Gulf Refining Co., Port Arthur	208,602	.....	208,602
Mariand Refining Co., Texas City	.....	126,044	126,044
Standard of Louisiana, Baton Rouge	1,022,552	.....	1,022,552
Totals for August	1,649,338	148,429	1,797,767
Totals for July	1,253,663	.....	1,253,663
Difference	395,675	148,429	544,104

VAPOR PRESSURE TESTING METHODS BEFORE U. S. AND A. P. I. OFFICIALS

Following conferences between the special technical committee of the general committee on railroad transportation of the American Petroleum Institute and Colonel B. W. Dunn, chief of the Bureau of Explosives, and L. I. Doyle, explosives agent of the Interstate Commerce Commission, a plan has been worked out to conduct experiments with the modified Bureau of Explosives apparatus and with the Anderson method of testing vapor pressure in the shipment of natural gasoline by tank car. Conferences were held in Atlantic City, N. J., September 17 and 18, when the need for more definite directions determining vapor pressure by the present standard method was emphasized, both for the purpose of comparing the Anderson method with it and also for commercial use.

The plan provides for four regional subcommittees which will conduct actual experiments over a period of a year in an effort to find the best method for determining vapor pressure adaptable for field use. The plan decided upon follows:

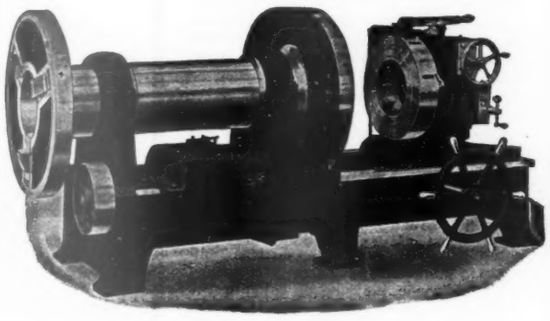
That the territory in which natural gasoline is manufactured should be divided into four regions, and that each region should have a chairman who is to be responsible for making the tests in his region, as follows: Eastern region (Pennsylvania, West Virginia, Ohio), H. C. Cooper, chairman; Central and Rocky Mountain region (Oklahoma, Kansas and Wyoming), D. E. Buchanan; Gulf Coast region (Texas, Louisiana and Arkansas), B. L. Pillow; Western region (California), chairman to be named later.

That cooperation from the Bureau of Explosives and the Bureau of Mines be secured by asking the Bureau of Explosives and the Bureau of Mines to designate one or more men for each region to assist in making the tests.

That each chairman plan to make tests at a sufficiently large number of plants throughout his region so that the results obtained will properly represent the entire region, and that this list of plants be sent in the chairman of the special technical committee, before the tests are started.

That the tests at the various specified plants in each region be first made in November, 1924, and repeated during each of the following months: January, March, May, July, August and September, 1925; and that complete reports be sent by the regional chairmen to the chairman of the special technical committee as soon as possible after each month's tests are completed.

That all tests on any particular gaso-



Cut it Right

Let us show you how to cut two things at once—cut threads on a B&K machine and at the same time cut your cost per thread. This machine will cut-off, thread and ream pipe at one setting, no duplicating of work. We build one suited to your requirements, whether you use small or large pipe.

Tell us the sizes you use.

BIGNALL & KEELER MACHINE WORKS, of the N. O. Nelson Mfg. Co.
Edwardsville, Illinois

The Cross Cracking Process

Gasoline or *Pressure Distillate*—Would you rather install a cracking process that makes end point gasoline or would you prefer a system that produces Pressure Distillate?

The Cross Process produces Gasoline direct.

THE M. W. KELLOGG CO.
90 West St.
NEW YORK CITY

BRANCH OFFICES:
700 Baltimore Avenue, Kansas City, Mo.
304 Lane Mortgage Building, Los Angeles, Cal.

line be made in triplicate with both the present standard and Anderson forms of apparatus and with any other apparatus which may be suggested and deemed worthy of consideration.

That all tests with both forms of apparatus be made at both 90 degrees F. and 100 degrees F., the pressures corresponding to the two temperatures being obtained from a single sample.

That all of the different grades of gasoline that are available at each plant shall be tested. It is of especial importance that these tests include the gasoline from loaded tank cars, ready for shipment, and from storage tanks.

That all reports shall be made on forms provided by the American Petroleum Institute.

That six each of the Bureau of Explosive apparatus, together with protecting cylinder for use in venting, and of the Anderson apparatus, be furnished each of the regional chairman for use in his territory.

That suggested modifications of either apparatus or method of use be reported by the regional chairmen as soon as they are developed.

EXPOSITION SHOWS INDUSTRY'S PROGRESS

(Continued from Page 44)

jobs. And if a line of fishing tools had not been developed, millions of dollars worth of drilling equipment would have been lost—and tens of thousands of producing wells would never have been completed. Probably no other exhibit appeals more strongly to the visitor's imagination than the numerous displays of fishing tools.

Storage Achievements

When Drake ordered the two storage tanks with a combined capacity of 228 bbls. he never dreamed there was such a thing as casinghead gas. In fact, about 60 days after the well was completed everything above ground was burned down when "Uncle Billy" Smith, the driller of the well, carried a lighted lantern too near it. While steel tanks came quickly into use it was 50 years before they were made vapor tight. The "conservation" of oil, gas and gasoline resulting from the use of vapor-tight tanks is worth millions of dollars a year to the producers—more probably, every year, than the cost of changing open top to vapor tight.

We are carrying today above ground about $500,000,000 worth of crude oil and about $400,000,000 worth of refined products, hence dependable fire fighting apparatus and materials are matters of vital importance to every branch of the industry. Taking into consideration the inflammable and explosive nature of some of the industry's products one more fully appreciates the several exhibits of fire fighting and fire preventive apparatus and materials.

The large and costly exhibits of engines, compressors, vacuum pumps, gauges, meters and accessory equipment for the handling of casinghead gas and the manufacture of natural gasoline only emphasize the fact that for more than 40 years after Drake drilled his well no one dreamed that gasoline could be recovered from casinghead gas.

Natural Gasoline Exhibit

The exhibit made by the Association of Natural Gasoline Manufacturers leaves practically nothing to the imagination as one can trace every step from the gas at the well to the gasoline in the tank car at the loading rack.

There are few industries today that in a space of 45 feet can show with miniature equipment the complete cycle of their operations. And no industry could possibly tell its story more clearly, entertainingly or instructively.

We seldom think of the numerous public service companies that distribute natural gas for heat, light and power as being a part of the oil business. Gas, pipe, meters, valves, fittings and even some types of burners used by the public service corporations come directly from the oil industry—hence the exhibit of the Oklahoma Natural Gas Co. at the International Petroleum Exposition is a fitting recognition of the close interrelation of these two great industries.

The cracking process exhibit only emphasizes the present outstanding tendency of the refining end of the industry to get more motor fuel out of the same barrel of crude oil.

Cracking is less than 15 years old, yet in 1923, out of a total of 194,000,000 bbls. of gasoline, 40,000,000 bbls. were made by cracking plants.

New Refinery Idea

Probably the very newest idea in the refinery treatment of crude oil is the exhibit of the Bartlesville station of the United States Bureau of Mines. If the installation of commercial sized units of this apparatus for the "vapor phase fractionation of crude oil" proves to be what the experimental apparatus indicates is easily possible, the idea will rank in economic and industrial importance alongside the idea of cracking.

There is today a rising tide of thought of oil as fuel for domestic heating. Some of the answers, in terms of apparatus, are on exhibit at the Exposition—and it is probable that in the petroleum expositions of the next few years one of the fastest growing exhibits will be the display of oil burning apparatus for the heating of homes.

The use of fuel oil by locomotives is constantly brought home to the visitor as the Exposition grounds adjoin the Frisco railroad's right-of-way.

On a "tonnage" basis the Exposition is a vivid illustration of the large part played by metal in the producing, transporting, refining and marketing of crude oil and its products. And when one looks past the hundreds of tons of iron and steel and other metals, they realize how great a part scientific research has played in making possible the present great development of the oil industry.

Scientific Processes

Temperatures of hundreds of degrees above zero and of an Arctic night below it—pressures of thousands of pounds to the square inch—vacuums that are almost perfect—tensile strengths of hundreds of tons—the heat treatment of metals—the chemistry of metals, oil, gas and water—the application of mechanical principles in a thousand different ways—the use of geology and its related sciences, all have contributed in our world-wide quest for oil and in the preparation of its hundreds of products for millions of users.

There is scarcely an exhibit at the International Petroleum Exposition about which a good-sized book could not be written—and there are numerous exhibits about which many books have been written.

To assemble all of the books, pamphlets and literature that have been written about things on exhibit at the 1924 Exposition and the problems of the industry that the machinery equipment and apparatus were built to solve, would be to assemble a "Petroleum Library" in which there would be little of the very latest development of the industry that would be missing.

The exhibits visualize, more completely than has ever before been done, the physical development of a $9,000,000,000 industry that started 65 years ago with a 30-foot derrick, a six horsepower engine, a 300-pound string of tools and a 14-bbl. well.

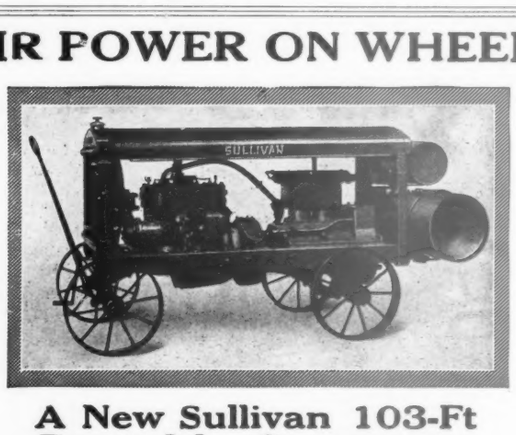
GAS FIND NEAR GOTEBO

MOUNTAIN VIEW, Okla., Oct. 4.—Gas has been found again in the test of the Sunray Oil Co. and associates a few miles north of Gotebo. The sand was entered at 1,970 feet and the volume of gas is estimated at 1,500,000 feet. Two gas sands were found above that level, one at about 1,100 feet. The Marland Oil Co. is drilling below 1,000 feet in a test just east of Gotebo.

TEAPOT TRIAL POSTPONED

WASHINGTON, D. C., Oct. 4.—Because of the refusal of certain witnesses to testify, trial of the Government's case for cancellation of the Teapot Dome oil leases at Cheyenne, Wyo., has been postponed from October 7 to January 6, 1925.

AIR POWER ON WHEELS



A New Sullivan 103-Ft Portable Compressor

This new Sullivan portable compressor meets the popular demand for a 100-ft. unit for many oil field jobs.

Try it for running Sullivan Rock Drills, for tank or building construction, concrete busting, operating portable hoists, sand blasting, paint spraying, etc. Its compactness and reliability will stand you in good stead.

A larger, 170 ft. gas engine driven compressor is also built, also a 121 ft. unit run from a Fordson.

Type—WK-311.
Displacement—103 cu. ft.
H. P.—17.
Weight—3,435 lbs.
Drive—Buda 4 cyl. 4 cyc. engine.
Mountings—Steel wheel, rubber tire wheels, trailer, or skid.
Ground area—9½x4½ ft.
New Bulletin, 1577-L.

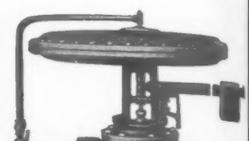
DOMESTIC SALES OFFICES
Birmingham, Boston, Butte, Claremont N. H., Cleveland, Dallas, Denver, Duluth, El Paso, Huntington, W. Va., Joplin, Jamestown, Knoxville, New York, Pittsburgh, St. Louis, Salt Lake, San Francisco, Spokane

COMPRESSORS AIR LIFT DIAMOND DRILLS SHARPENERS FORGES
FORGE HAMMERS COAL CUTTERS ROCK DRILLS DRILLING CONTRACTORS

SULLIVAN TRADE MARK
MACHINERY COMPANY
88 East Adams St., Chicago

FOREIGN SALES OFFICES
Algiers, Brussels, Calcutta, Christiania, Durban, Natal, Havana, Lima, London, Madrid, Mexico City, Paris, San Juan, Santiago, Shanghai, Sydney, N. S. W., Tokyo, Toronto, Tunis, Turin, Vancouver.

Always on the job!



The C-F Automatic Cut-Off

It automatically closes the ports of the regulator valve.

The valves have to be opened by hand before the flow of gas resumes.

No chance for dangerous explosions.

If the diaphragm of the regulator should burst, this cut-off would stop the flow of gas immediately.

More than thirty years of experience in controlling gas pressure has taught us how to make this device dependable in its operation.

The Chaplin-Fulton Mfg. Co.

Organized 1884—oldest builders of gas regulators in the country. Built in all sizes, from 1 inch to 24 inches; for all service, 1 oz. up to 1,000 lbs. pressure to square inch.

28-34 Penn Avenue
Pittsburgh, Pa.

BETTER FRACTIONATION OF CONDENSATES

(Continued from Page 200)

conveying the crude oil thereto. The pipe is bent as at 29 to provide a trap which functions to maintain the fluid at a constant level in lower chamber and at the same time operates to prevent the passage of vapor from the still to said lower chamber 21.

The lower end of the lowermost stand pipe 26 is immersed in the fluid in the lower chamber 21 to prevent the passage of the vapor from the compartment 25 through the stand pipe and compel it to pass through the nipples 23. In the secondary units 11, a drain pipe 30 communicates with the lower chamber 21 and the same is provided with an offset portion 31 which functions to maintain a constant level of the fluid of condensation therein, whereby to seal the lower end

Fig.2.

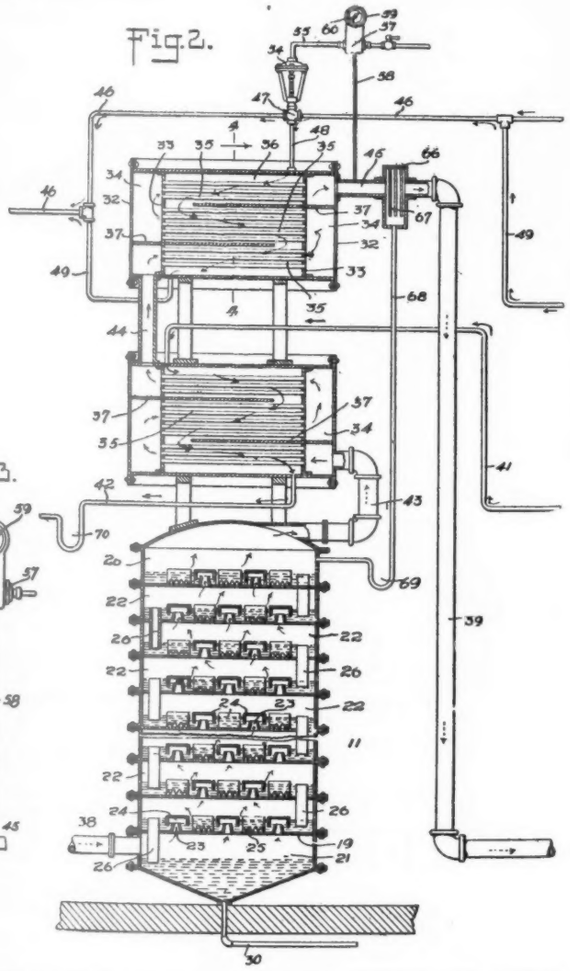
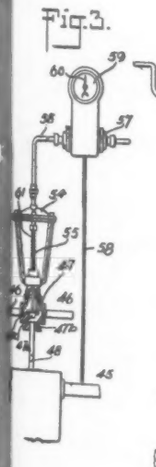


Fig.3.



of the lowermost pipe 26 for a like purpose. In the primary unit the reflux condenser 14 is substantially of the same construction as the exchange and dephlegmator drums 17 and 18 of the secondary units 11. Each of the drums are provided with outer heads 32 and inner heads 33 spaced therefrom to provide the end chambers 34 connected by a plurality of batteries of tubes 35 which extend through the central chamber 36 and establish communication between the chambers 34.

Drums Divided

The drums are further divided by the longitudinal partition walls 37 which extend alternately therethrough from the opposite outer heads 32 into the central chamber 36 and terminate short of the inner heads 33. By this arrangement it will be seen that the vapor taken in at one side of the lower partition 37 in one of the outer chambers 34, will be compelled to travel through the tubes to the opposite end chamber 34, in a sinuous course from the inlet to the outlet. It will be further evident that fluid taken into the central chamber at one side of one partition 37, will be compelled to travel through a sinuous course around the tubes to and from the inlet to the outlet of the opposite side of the other partition. The outlet of the reflux condenser is connected by a conduit pipe 38 to the lower chamber 21 of the rectifying tower 16 of the adjacent secondary unit 11. Likewise the outlet of the dephlegmator drum 18 of each secondary unit 11 is connected by conduit pipe 39 to the lower chamber 21 of the rectifying tower of the next adjacent unit.

The initial supply of crude or charging oil is conveyed by a pipe 40 to the central chamber 36 of the last exchange drum 17 of the series of units thereby entering said central chamber above the upper partition 37, where it flows through said compartment and is carried off by a conduit pipe 41 which enters the central chamber 36 to the next adjacent exchange drum after taking a sinuous course therethrough around the batteries of tubes 35. In each of the succeeding units the crude oil supply is conveyed through a similar pipe 41 to the next adjacent secondary unit 11. The crude oil is conveyed by a pipe 42 directly to the upper chamber 20 of the stripping tower 12 where it gravitates through the various nipples 23 and stand pipes 26 to the bottom compartment 21 and is finally carried to the still or furnace through the pipe 28.

Through Stripping Tower

At the same time the vapor conveyed by the pipe 13 from the furnace is traveling through the stripping tower 12 to the reflux condenser 14 by way of the conduit pipe 15, which enters one of the end chambers 34 below the partition 37 at the lower side of the drum, the vapor

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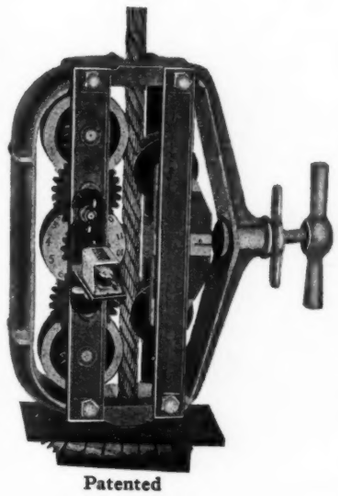

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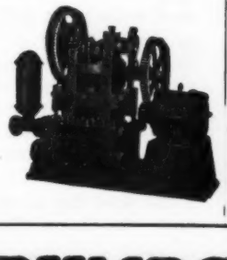

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traveling in a sinuous course through the tube batteries 35 to the outlet. The vapor from the reflux condenser passes into the lower chamber 21 of the rectifying tower of the adjacent secondary unit 11, repeating the action set forth in the stripping tower 12. From the upper chamber 20 of the rectifying tower 16 it is conveyed by a pipe 43 to one of the end compartments 34 of the exchange drum 17, below the partition 37 thereof thence through the tube batteries 35 to the opposite end compartment 34 and through a pipe 44 to the dephlegmator 18.

During the sinuous course of travel through the exchange drum, it is evident that the crude oil flowing through the center compartment will tend to cool the vapor, while the vapor at the same time will function to heat the crude oil thereby setting up the exchange action. From the pipe 44 the vapor enters the dephlegmator 18 in one of the end compartments 34 below the lower partition 37 and thence through the tube batteries in a sinuous course to the opposite end compartment above the upper partition 37 to an outlet pipe 45 which is conected to the conduit pipe 39. In the dephlegmator drums 18 and the reflux condenser 14, the central chambers 36 constitute a compartment for the reception of the cooling agent, preferably water.

Fig. 4.

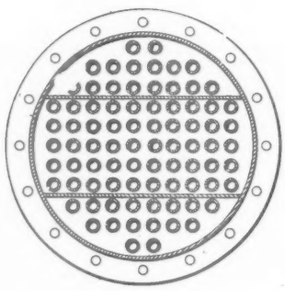


Fig. 6.

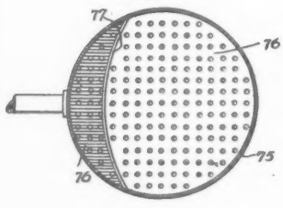


Fig 7

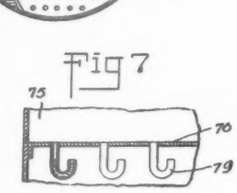
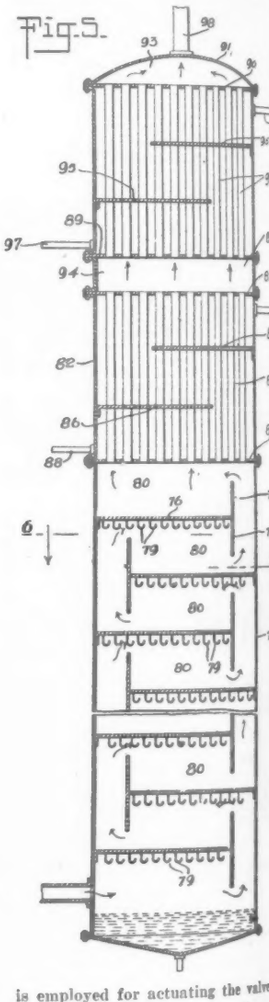


Fig. 5.



Water Supply Line

A water supply line 46 traverses the series of units 11 and is provided with a three-way valve 47 arranged therein adjacent each dephlegmator drum 18. A branch or feed pipe 48 leads from one port of each valve 47 to the chamber 36 of its respective dephlegmator, above the upper partition wall 37. An outlet and return pipe 49 communicates respectively with the chamber 36 at the bottom of the drum and the feed pipe whereby the cooling agent may be circulated therethrough. The supply line 56 connects with a three-way valve 50 adjacent the reflux condenser and said valve communicates through a branch feed pipe 51 with the upper end of the chamber 36 of the reflux condenser. The remaining port of the valve 50 communicates with an exhaust water pipe 52 into which the outlet and return pipe 53 from the bottom of the reflux condenser drum empties. Each of the three-way valves 47 is provided with a shiftable valve member 47a which is adapted to cooperate with the respective valve seats 47b and 47c. By this arrangement upon the shifting of the valve, the water supply or cooling agent may be either circulated through the dephlegmator drums or the reflux condenser drum, or by-passed around the same.

In order to provide means for regulating the apparatus automatic in its operation, a temperature controlling device is employed for actuating the valve, the mechanism being of any ordinary construction. In the particular showing made the automatic controlling device includes a diaphragm 54 which operates directly on the valve stem 55 when air is supplied thereto through the air pipe 56. A thermostatically actuated valve 57 controls the supply of air through the air pipe 55 and the thermostatic tube 58 of said valve 57 extends into the outlet pipe 45 where it will be subjected to the heat action of the vapors passing therethrough. An indicator 59 having an indicator and setting 60 is provided for setting the thermostatically controlled valve to any desired degree.

Air Controlling Valve

When the temperature of the vapors reaches the predetermined degree desired the thermostatic tube will actuate the air controlling valve 57 to shut off the air supply to the diaphragm 54, per-

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ting a spring 61 to function to move the valve member 47a into contact with the seat 47c, to establish communication between the supply line 46 and the branch pipe 48. The water will then flow into the central chamber 36 of the dephlegmator and after circulating therethrough will flow through the outlet and return pipe 49, back to the supply line 46. Where the temperature falls below the predetermined degree of heat, the thermostatic tube will open the valve 57 to allow the supply of air to actuate the diaphgram and shift the valve member 47a into contact with seat 47b, whereby the water will be by-passed around the dephlegmators. The three-way valve 47 of the primary unit 10 operates in a similar manner for establishing communication between the reflux condenser 14, and the supply line. By this arrangement the water may be run through or by-passed around the reflux condenser under the controlling action of a similar controlling device.

In order to provide additional means for removing the heavier fractions from the vapor or gas during its travel from the reflux condenser to the rectifying column or from the dephlegmators to the rectifier columns, use is made of the separators 66 which communicate respectively with the outlet pipe 45 and the conduit pipes 38 or 39. The separators are provided with a plurality of spaced baffle plates 67 depending from their upper wall and the lower wall of said separators receives the drain pipes 68 which carry off and return the heavier fractions to the stripping or rectifying tower as the case may be. Preferably traps 69 are arranged in the drain pipes 68 to seal the pipes against the passage of vapor or gas therethrough from the stripping or rectifying towers to the separators 66. The conveyor pipe 42 leading from the exchange drum 17 to the stripping tower is provided with a depending offset 70 which constitutes a trap to eliminate the possibility of the passage of the vapor from the stripping tower to the exchange drum.

Details of Operation

In use and operation of the apparatus, vapor or gas generated in the still or furnace is conveyed by the pipe 13 to the lower chamber 21 of the stripping tower or column 12, from whence it rises through the nipples 23 to the caps 24 and through the liquid trapped in each of the intermediate compartments 22 and the upper compartment 20. The liquid contained in these compartments is a mixture of the crude or charging oil supplied thereto through the pipe 42 and the vapor condensate which is formed in the reflux condenser 14 and the separator 66.

In passing through the liquid, the vapor will strip the lighter fractions from the crude or charging oil and carry said fractions with it. Te vapor then passes to the reflux condenser drum 14, where the flow of the cooling water is so regulated by the automatic temperature controller as to condense and return to the still through the stripping tower 12, the fractions heavier than a predetermined gravity. Any heavier condensate mechanically carried by the vapors leaving the reflux condenser, is removed therefrom by the separator 66 and returned to the stripping tower by the drain pipe 68. The vapors leaving the separator will be conveyed by the pipe 38 to the lower chamber 21 of the first rectifying tower 16, where the ascending vapor will be washed by the condensate collected thereon from the exchange drum 17 and the condenser drum 18. The condensate which is also scrubbed by the rising vapor causing the re-evaporization of the lighter fractions of the condensate, gravitates to the lower compartment 21, from whence it is conveyed from the drain pipe 30 to the proper storage tank.

Exchange of Heat

The vapors leaving the rectifying tower enter the exchange drum 17, where an exchange of heat takes place between the vapors and the crude or charging oil on its way to the still. The vapor then

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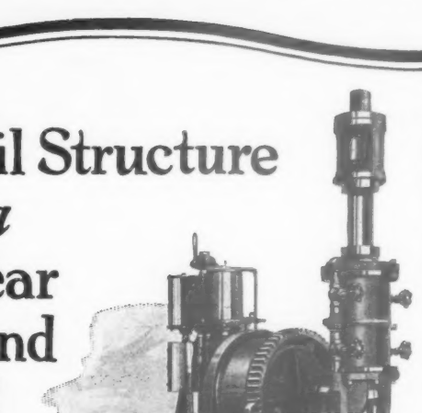

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passes into the condenser or dephlegmator drum 18, where all the fractions heavier than a certain gravity are condensed, this separation being automatically controlled by the temperature regulating means, which governs the flow of cooling water around the tubes. This action is repeated in the following units to effect the separation of lighter fractions from the vapors of each succeeding unit. It will be noted that the flow of the vapors is counter-current to the flow of both the oil and the water. By this arrangement the cooling water will act successively upon vapors of a higher degree of temperature than the temperature of the preceding vapors, thereby permitting of the use of the same water to economize in the amount used. Likewise the crude or charging oil supply will be gradually tempered by meeting increasingly hotter vapors in the successive exchange drums.

In the modification illustrated in Figures 5, 6 and 7 of the drawings the rectifying tower 75 is provided with a plurality of vertically spaced horizontal baffle walls 76 which alternately terminate within the inner periphery of the tower at opposite sides thereof to compel the vapor or gas to travel through a sinuous course therethrough. The free ends of said baffle walls are provided with vertical upstanding and depending baffle flanges 77 and 78. The baffle walls 70 are further provided with a plurality of depending goose necks 79 which constitute gravity spray nozzles.

By this arrangement the vapor condensate will gravitate through the goose necks and drop through the compartments 80 onto the next lower baffle wall 76 in the form of spray thereby bathing the vapor and gas as it passes throughout the rectifying tower. In this instance the rectifying tower is open at its upper end and is closed by the lower head 81 of the exchange drum 82. The upper head 83 and lower head 81 of the exchange drum are perforated for the reception of a battery of tubes 84 which establish communication between the upper compartment of the rectifying tower and a dephlegmator drum 85 which is open at its lower end and is secured over the head 83.

Baffle Walls

The exchange drum is provided with horizontal baffle walls 86 which extend inwardly from opposite sides thereof to cause the crude oil passing therethrough to travel in a sinuous course from the intake pipe 87 to the outlet pipe 88. The dephlegmator drum 85 is provided with a bottom head 89 spaced from its lower end and an upper and inner head 90 which is covered by a supplemental head 91. The heads 89 and 90 are perforated for the reception of the battery of tubes 92 which establish communication between the upper and lower compartment 93 of the dephlegmator. The dephlegmator is provided with a plurality of horizontal baffle walls 95 which alternately extend inwardly from the oposite sides thereof to compel the water passing therethrough to travel in a sinuous course from the water intake pipe 96 to the outlet pipe 97. The remaining vapor in the compartment 93 is carried therefrom to the next unit by means of conduit pipe 98.

While there has been described and illustrated several preferred embodiments of the invention, it is to be understood that the right is reserved to others than those actually shown herein, to the full extent indicated by the general meaning of the terms in which the claims are expressed and by variations in the phraseology of the same.

I claim:

1. In an apparatus of the character described, a distilling apparatus and a plurality of fractionating condensing units, arranged in series, the first unit communicating with the vapor space in the distilling apparatus, each unit comprising a heat exchanger and a water cooled condenser in communication with each other, with devices for drawing off condensate from each of said units; the arrangement being such that the vapors pass through each successive heat ex-

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changer and water-cooled condenser in eries, while the charging oil to the dis- illing apparatus flows in a countercur- ent direction through each successive eat exchanger in heat absorbing relation o the vapors passing therethrough, the haracter of the condensate from each nit being governed by the flow of the ooling water through its respective con- enser.

2. In an apparatus of the character escribed, a distilling apparatus and a lurality of fractionating condensing nits, arranged in series, the first uit ommunicating with the vapor space in he distilling apparatus, each unit com- rising a heat exchangeer and a water ooled condenser in communication with ach other, with devices for drawing off ondensate from each of said units; the rrangement being such that the vapors ass through each successive heat ex- hanger and water-cooled condenser in eries, while the charging oil to the dis- illing apparatus flows in a countercur- ent direction through each successive eat exchanger in heat absorbing relation o the vapors passing therethrough, the haracter of the condensate from each nit being governed by the flow of the ooling water through its respective con- enser, and temperature controlling means ctuated by the temperature of the vapors ssuing from each unit for independently egulating the flow of said cooling water.

Process Described

3. In an apparatus of the character escribed, a distilling apparatus, and a lurality of units, arranged in series so hat the first unit communicates with he vapor space of the distilling ap- aratus and delivers its residual vapors o the next in series, devices for return- ng condensate from said first unit to the till; the first unit comprising means hereby the vapors from the distilling pparatus are subjected to a bath in the harging oil; each unit comprising a eat exchanger and a water cooled con- enser in communication with each other, ith devices for drawing off condensate rom each of said units; the arrange- ent being such that the vapors pass hrough each successive heat exchanger nd water cooled condenser in series, hile the charging oil to the distilling pparatus flows in a countercurrent di- ection through each successive heat ex- hanger in heat absorbing relation to he vapors passing therethrough, the haracter of the condensate from each nit being governed by the flow of the ooling water through its respective con- enser.

4. In an apparatus of the character escribed, a distilling apparatus, and a lurality of units, arranged in series so hat the first unit communicates with he vapor space of the distilling ap- aratus and delivers its residual vapors o the next in series, devices for return- ng condensate from said first unit to the till; the first unit comprising means hereby the vapors from the distilling pparatus are subjected to a bath in the harging oil; each unit comprising a eat exchanger and a water cooled con- enser in communication with each other, ith devices for drawing off condensate rom each of said units; the arrangement eing such that the vapors pass through ach successive heat exchanger and water ooled condenser in series, while the harging oil to the distilling apparatus lows in a countercurrent direction hrough each successive heat exchanger n heat absorbing relation to the vapors assing therethrough, the character of the ondensate from each unit being governed y the flow of the cooling water through s respective condenser, and temperature ontrolling means actuated by the tem- erature of the vapors issuing from each nit for independently regulating the flow f said cooling water.

5. In an apparatus of the character escribed, a distilling apparatus, and a lurality of units, arranged in series so hat the first unit communicates with he vapor space of the distilling ap- aratus and delivers its residual vapors o the next in series, devices for return- ng condensate from said first unit to the still; the first unit comprising means whereby the vapors from the distilling apparatus are subjected to a bath in the charging oil, and means for controlling the temperature of vapor passing to the second unit, each unit comprising a heat exchanger and a water cooled condenser in communication with each other, with devices for drawing off condensate from each of said units; the arrangement being such that the vapors pass through each successive heat exchanger and water cooled condenser in series, while the charging oil to the distilling apparatus flows in a countercurrent direction through each successive heat exchanger in heat absorbing relation to the vapors passing therethrough, the character of the condensate from each unit being gov- erned by the flow of the cooling water through its respective condenser.

ROYAL DUTCH-SHELL GERMAN-RUSSIAN DEAL

Further details are furnished by the London Times' Berlin correspondent about the agreement concluded between a German consortium headed by the Deutsche Erdoel Gesellschaft, and in- cluding the Deutsche Petroleum Aktien- Gessellschaft, and the Russo-Naphtha Syndicate, for deliveries of petrol and oil products on the pre-war scale. The an- nual turnover involved is estimated at 15,000,000 marks (£800,000) for petrol and 30 to 40 million marks (£1,600,000 to £2,100,000) for oil products.

A similar agreement, although on a smaller scale, is said to have been con- cluded recently in London between the Standard Oil Co. and the Naphtha Syn- dicate for a delivery of 25,000 tons of oil, for Egypt and Turkey.

The Russo-German petroleum agree- ment, the ratification of which was de- layed temporarily by the Russo-German dispute over the rights of the Russian Trade Delegation in Berlin, has been signed. The negotiations were carried out between a German consortium, headed by Dr. Adler, of the German Er- does Co., and the president of the Rus- sian Naphtha Syndicate, Dr. Maltz- mann. Under this agreement the Rus- sian Syndicate regains the position on the German market which it held in 1914. The amount of benzine (petrol) which it can sell will be 15,000,000 marks' worth yearly, while the sale of oil prod- ucts will range from 30,000,000 to 40,- 000,000 marks. The agreement has an English connection, as one firm con- cerned is the Stern-Soenneborn Co., of Hamburg, which was recently reported to have been purchased by the Royal Dutch and Shell.

TRADE ASSOCIATION RIGHTS CONFERENCE

WASHINGTON, D. C., Oct. 4.—Adoption of some definite Government at- titude toward trade associations, espe- cially with respect to the statistical activities of those organizations, is ex- pected to follow upon the series of con- ferences planned for with several Fed- eral agencies by the United States Cham- ber of Commerce.

According to the present plans a spe- cial committee of the chamber will confer severally with Attorney General Stone, Secretary Hoover and members of the Federal Trade Commission. The commit- tee is to submit to these Federal officers its trade association policy which declares these organizations to be business neces- sities, opposes Government control and asserts the rights of the trade associa- tion to collect and disseminate trade sta- tistics without interpretation so long as they are made available to the public and the Government at the same time they are furnished to the members.

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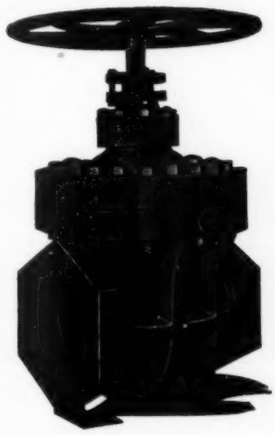

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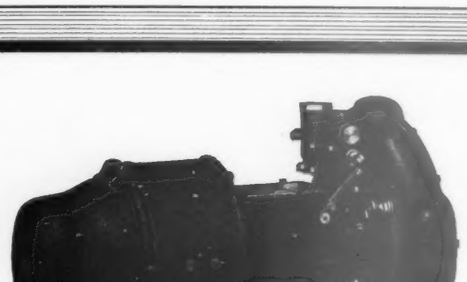

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A. P. I. and Railway Committees Confer About Car Service

By L. M. Fanning

As a result of conferences between the car service sub-committee of the American Petroleum Institute and the committee on records of the American Railway Association the matter of inability of railroads to collect excess empty mileage in the event of oil companies going out of business has been virtually settled. This is one of the outstanding matters taken up in connection with the meeting of the general committee on railroad transportation of the institute held in Atlantic City, September 18.

Railroads in the Southwest have been complaining of loss of money through oil companies going into receivership or dissolving and selling or disposing of their tank cars without settling for excess empty mileage due the roads. The matter took on a more serious phase when the Southwestern Car Service Association, chiefly actuated by the situation mentioned, advocated fundamental changes in the operation of the mileage equalization rule. At the recent conference between the representatives of the oil industry and the rilroads it was decided that the rule as it exists has advantages both to tank car owners and to carriers and that the rule as such should not be changed. However, in order to protect the carriers against loss in cases referred to it was agreed to add a note to the present rule in the tariff, the substance of which is that where the owner of tank cars goes bankrupt or disposes of his tank car equipment the carriers have the right to strike immediately a balance of the mileage equalization account and present a bill unless the purchaser of the equipment assumes the obligation of the rule.

Under the ordinary working of the rule the railroads strike a balance at the end of 12 months and the tank car owners under the law are given the right to carry forward the account for another six months at the end of which time the railroad bills the company for whatever excess exists. The railroads contended that in the case of companies going out of business such a considerable lapse of time might exist from the time of that occurrence to the time the railroads could bill that collection was difficult or impossible.

Railroad Contentions

The position of the railroads as regards tank cars is different from their position regarding other rolling stock. In the case of tank cars, these are owned by private companies and not by the railroads, except in very small proportion. The private owners receive 1½ cents per mile from the railroads as compensation for the use of a tank car either loaded or empty. Theoretically the loaded freight rate is sufficient to compensate the carrier for transporting the empty tank car back to its point of origin. At the end of a given period there may be an excess of loaded cars transported or an excess of empties. If there is an excess of empties at the end of six months after the railroads strike their balance the car owners have to pay varying rates according to the railroad district. In the southern district the rate is 8 cents; in official classification districts, 9 cents, and in western territory, 15 cents.

Another matter discussed by the institute committee and the committee on records of the A. R. A. in connection with excess empty mileage was settlement by the carrier in event of an error on its routing a tank car. Frequently railroads make a mistake and route back an empty tank car contrary to instructions of the shipper resulting in a claim for excess empty mileage against him on the part of the railroad which moved the car. Under the present Interstate Commerce conference ruling the owners have to pay the claim and then file a

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claim with the railroad which made the mistake. A method is being sought whereby the railroads will adjust the claim directly and leave the owner out of it. The railroads do not deny their liability in case of such mistakes but under the law they have no other way than to present a bill to the owner. The adjustment of this matter will probably be accomplished through permission of the I. C. C. or an amendment to the tariff.

Storage Regulation

Another matter discussed by the general committee on railroad transportation was the code of storage rules. Under rule 6 of the code of storage regulation of the Interstate Commerce Commission is a definition of what constitutes railroad premises. There is disagreement between the shippers and the carriers over the question of when storage can be collected, involving the definition of private track and whether or not the track is in the carrier's right of way, yards or terminals. A special committee on code of storage rules was appointed to confer with the demurrage and reconsignment committee of the A. R. A. in an effort to clear up the questions involved. The committee comprises E. H. Porter, of the Atlantic Refining Co.; R. H. McElroy, Standard Oil Co. of Indiana; Al Holmes, Empire Refineries; J. M. O'Day, Sinclair Refining Co., and C. B. Ellis, Gulf Refining Co.

The Bureau of Explosives and the Interstate Commerce Commission desires to develop a rule about sampling of contents of tank cars in railroad yards. In this connection the Bureau of Explosives submitted a suggested amendment to paragraph 1002-B of the Interstate Commerce Commission regulations regarding inflammables to the effect that tank cars should not be opened for sampling unless put on a siding off the main line or on the delivery track, and also a suggested amendment to paragraph 1050-10 which would prevent the offering or accepting for transportation of inflammable products unless the consignee had facilities for piping the liquid direct from the car to a terminal storage plant. Colonel B. W. Dunn, chief of the Bureau of Explosives, and L. I. Doyle, explosive agent of the Interstate Commerce Commission, were present at the conference. The general committee of the institute agreed to the principle of the proposed amendments and the exact phraseology will be worked out later.

Safety Valve Report

Involving a suggested change of safety device at large cost to tank car owners, is the most recent amendment to Interstate Commerce Commission regulation No. 401 indicating that the commission thinks some improvement in the present safety valve on tank cars should be made. In this connection the commission asked for a report on what progress was being made by the A. R. A. and the institute on the development of a new valve. The institute's report covering this matter follows:

"The commission's rules require that tank cars used for the transportation of inflammable products be constructed in accordance with American Railway Association specifications. In consequence thereof the safety valve now used on tank cars is the prescribed standard A. R. A. safety valve. When originally adopted it was the best and safest known mechanical contrivance adaptable for the purpose. There was no complaint of its operation until the relieving pressure was raised from 8 to 25 pounds. Since that time a great deal of experimental work has been done, the concrete result of which is from time to time submitted to the tank car committee of the American Railway Association.

"So far as we are informed no one has yet developed a tank car safety valve which, in the judgment of the mechanical men composing the tank car committee of the A. R. A. or the mechanical sub-committee of the institute, is of any substantial improvement over the present valve or adds anything to safety.

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concerned it is our information that there are no reported cases of any accident, other than a possible inconsequental one or two of no significance, happening as the result of the use of the present safety valve, and it is to be assumed that herein lies the measure of the commission's real interest in the subject. In other words, that where an instrumentality is being safely used in transportation the commission has no particular interest in asking private owners of equipment to make expensive changes to secure ends which may or may not be wholly economical to them or which merely results in serving the interest of some inventor or some holder of a patent.

"The owners of petroleum tank cars have from time to time sought to impress upon the carriers and the commission their readiness to cooperate in providing the largest measure of safety in the transportation of petroleum products consistent with what the President has recently so aptly termed 'common sense' and when a feeling of that kind exists within a particular industry surely it is calculated to result in a minimum of accidents which can be justly charged to that industry."

Concerning Registration

Another matter of interest to owners of tank car equipment discussed at the meeting was in connection with the Interstate Commerce Commission's demand for information respecting tank cars for the railway equipment register. The railroads are required to show the weight carrying capacity in pounds of all equipment moving on their lines and they publish this information in the Register, a private enterprise, which charges for its space. There has been some complaint that tank car owners have not in every case listed their tank car capacity in the Register, but as these owners are not common carriers and are not under the commission's ruling as regards the publishing of tariffs, a good many have declined to go to the expense involved. The railroads, however, are required to publish the information regarding tank cars as well as other lines of equipment. The general committee on transportation decided that this was not a question for its decision but was one for individual action by each company. At the same time the committee was of the opinion that tank car owners furnish the information to the carriers for the carriers to publish in the Register if desired.

INDUSTRY'S PROSPECTS AS SEEN IN NEW YORK

(Continued from Page 178)

which would give real help to the oil situation.

As for the production of crude oil, there seems at this distance to be no great chance of a big decline in production for at least a month, and perhaps not until the closing months of the year. There seems to be an unusually good chance of big additions to storage on top of what has already been added, before a monthly decrease in stocks can begin to be reported.

Reductions in prices of crude oil and refined products, therefore, may go further during the next few weeks than is now anticipated.

Possibility of Shortage

On the other side is the recognized possibility, though not probability, that the next few months will witness an unexpected decline in domestic crude oil production of vast proportions, which would, in the face of a slight decline in consumption, bring about a large drawing upon stocks before the end of the year. Higher prices would immediately result all along the line.

In this event a shortage of oil would occur in the near future if new flush production could not be uncovered, and if this situation ran on through next spring, a serious situation would be faced.

Meanwhile, one question arises, namely as to whether a shortage or even a

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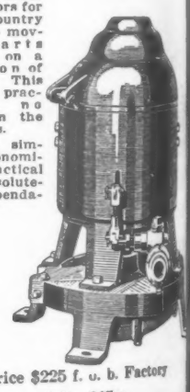

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threatened shortage would benefit the oil business in the end. During the last year the oil industry has launched into a new branch of sales, namely the development of domestic oil burning. This has not reached an extent which involves a big consumption of oil yet, but nevertheless a large investment has been made by oil companies, oil burner manufacturers and the public in the installation of oil-burning equipment for industrial plants, business buildings, apartment houses and private homes. It has been suggested that in the event of a rise in prices of oil to a degree which would make coal the cheaper fuel, oil burner users could temporarily remove their oil burners and restore coal burning equipment. This change, however, would necessarily be for an indefinite period. It would mean sales of oil burning equipment would have to be curtailed or stopped for an indefinite period, and that oil companies would suffer a considerable decrease in sales of oil for those heaters. In other words, it is questionable, in the view of some oil men, whether a temporary change would be practicable.

A threatened scarcity of oil and rise in prices would also bring back renewed agitation against the oil industry, especially with reference to gasoline. Radical politicians are necessarily more quiet now that Congress is not in session, but their number has increased rather than declined. The situation as to political action against the oil business is steadily growing worse, if signs mean anything. Investigations by Federal bodies are now being duplicated in many of the 48 States of the Union. This means a big financial burden on the oil industry as well as on the taxpayer involved in litigation.

Higher oil prices would help pay for this litigation. They would bring a temporary prosperity to the oil industry. But level headed oil men do not anticipate with undue pleasure a shortage of oil. Nor does it seem at present that they have anything to fear on this score, unless, of course, the unexpected happens.

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TELLS CONDITION OF THE RUSSIAN OIL INDUSTRY

(Continued from Page 178)

But doing this the Government makes the price of the kerosene in reach of the peasant and crude oil for the manufacturer. These measures have enlarged the market and increased the sale.

Perspective of Near Future

Having ready money, we propose even now to renew our old fashioned technical equipment. At first we intend reequipping our two large electrical power stations of 56,000 K. W. capacity and also our refinery, and to also build new refineries, using the cracking process. For the second time we have to construct new pipe lines and tank ships, part of which we have already ordered.

In the oil fields we shall have to change our disadvantageous Russian standard drilling with three fall and use only American methods of rotary and cable drilling. At last we have started pumping instead of bailing, a rather unique method used by former operators.

Russian and American Oil Industry

All this plan of reequipment we expect to finish during the next three years or from 1924 to 1927. We have ready money, material and equipment we have received partly from Russia, partly from America, and we have already placed our orders for very much more, and what is important we hope to get may be a little part of the great American oil experience, and I thing that this exhibition will acquaint us with new ideas and inventions of the oil industry. Then we shall know what and where to buy.

This Congress will acquaint us with American experience and will bring together the many skilled tradesmen of America, many of whom I have already met, and have seen how splendidly they do their work.

Lastly, members of the Congress, I hope that this will help the friendship of two great similar republics, the junior of which has just received its political liberty.

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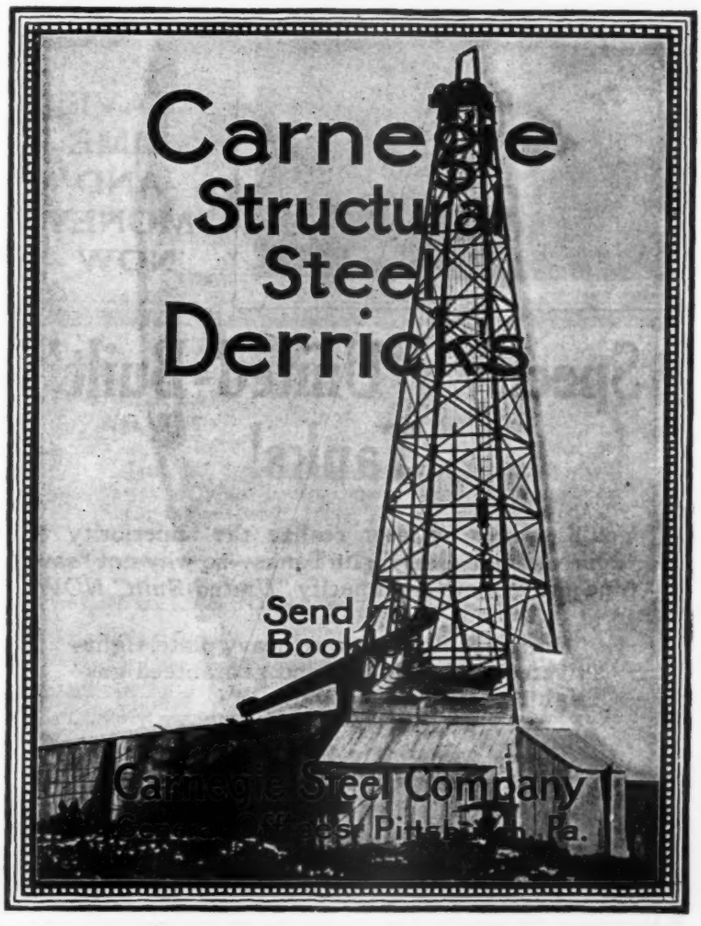

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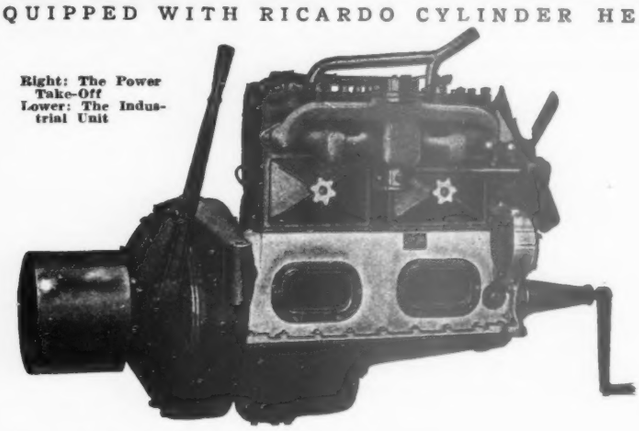

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South Dakota Suit On State Gasoline To Supreme Court?

SIOUX FALLS, S. D., Oct. 3.—Judge L. L. Fleeger, of the State Circuit Court, after an extended hearing, has taken under advisement a decision in the action instituted by Jacob Shillingstad, a farmer of Lincoln County, South Dakota by which he seeks to enjoin Governor W. H. McMaster and C. T. Charnock, C. N. Leedom and Andrew Marvick, of the State Highway Commission, from continuing the sale of gasoline by the State in competition with regularly established dealers. It is expected a decision will be rendered by Judge Fleeger early in October.

Shillingstad alleged in his complaint that the State had no authority to engage in selling gasoline at retail in competition with regular dealers; that the State has lost money by the selling of gasoline, to the injury of himself and other taxpayers of South Dakota, and asks that the defendants be enjoined from conducting further sales of gasoline at retail anywhere in South Dakota.

In their answer the defendants allege the action was brought in behalf of certain persons engaged in the sale of gasoline at retail in South Dakota, and that the real purpose of the action is not to protect the public funds of the State nor to protect the plaintiff as a taxpayer from injury, but was brought in behalf of certain retail dealers of gasoline to prevent the State, through its highway commission, from furnishing gasoline at retail in what is alleged to be unfair competition with them as dealers.

The defendants admit the State Highway Commission has offered gasoline for sale at retail at the stations acquired by it at several points in the State for gasoline storage purposes, and has paid for these gasoline supplies out of the State highway fund; that when gasoline has been sold the moneys received therefor has been returned into the State highway fund. The defendants deny that gasoline has been sold by the State at retail at a loss, as alleged in the complaint of Shillingstad.

The defendants further set forth the Highway Commission "has sold gasoline uniformly at a price of about 2 cents per gallon above the cost of delivery at the stations in South Dakota, and that the spread of 2 cents per gallon takes care of all overhead cost and makes a substantial profit for the funds of the State." It is further contended by the defendants that the sale of gasoline by the State at the State tank stations has been undertaken as incidental to the main purpose of securing gasoline for the State at the least possible cost, and that the highway Commission does not intend to engage in the business generally of retailing gasoline to the public.

The defendant members of the State Highway Commission and the governor have submitted a detailed statement to the court showing that from August 8, 1923, to August 6, 1924, the State of South Dakota made a net profit of $725.05 on the large volume of gasoline sold by it at retail in competition with regular dealers during the year covered by the statement.

There is a possibility that the Shillingstad action may ultimately find its way to the South Dakota Supreme Court, for a final decision by that body on whether or not the State has a right to continue to sell gasoline at retail and thus compete with dealers who have heavy investments in plants and much greater overhead expenses than the State.

DEEPENED LOVELL WELL

LOVELL, Wyo., Oct. 4.—Lovell Gas & Electric Co. has deepened an old gas well near here and got 40,000,000 feet flow in new sand at approximately 1,800 feet. This is on what is known as the Garland anticline. Utah Southern Oil Co., on same structure, is reported to have a flow of 10,000,000 feet at shallow depth.

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Record Dividends For Standard Oil In Third Quarter

NEW YORK, Oct. 4.—Despite the reduction in dividends by some of the so-called Standard Oil units, the aggregate payments of these companies during the current quarter will establish a new high record for any corresponding quarter in any year in the history of these companies. The aggregate is smaller than the total for the second quarter of the year, which, however, included some semi-annual payments, whereas the total for the current quarter includes only quarterly payments.

The disbursements for the current quarter amount to $34,712,810. This compares with disbursements of $40,311,592 in the second quarter of the current year and with $31,066,251 in the corresponding quarter last year.

In a compilation by Carl H. Pforzheimer & Co., it is pointed out that "in spite of the omission of the quarterly dividends by the Atlantic Refining Co. and the Standard Oil Co. of Kansas and reduced disbursements by the Indiana Pipe Line Co. and the National Transit Co. the total cash disbursed is the largest for any third quarter since the dissolution of the old Standard Oil Co. of New Jersey in 1911. The Standard Oil Co. of New Jersey, as usual, distributed more cash to its stockholders than did any other one company.

"Cash disbursements of this group of Standard Oil Companies for the first nine months of the current year aggregated $110,388,269 compared with $110,877,490 in the corresponding period last year. This indicates that total dividend payments of the group for the full year 1924 will cross $150,000,000 for the first time since the dissolution of the old New Jersey company. As the 38 companies in the group have an outstanding capitalization in common and preferred stocks of approximately $2,300,000,000 this would be equivalent to an average disbursement for the group of 6½ per cent.

Cash disbursements of the Standard Oil group of companies by quarters and for the full years since the dissolution of the old company, as compiled by Carl H. Pforzheimer & Co., has been approximately as follows:

	First Quarter	Second Quarter	Third Quarter
1924 ..	$34,975,867	$40,699,592	$34,712,810
1923 ..	33,499 988	36,311,251	31,066,251
1922 ..	28,206 068	29,205,349	28,628,099
1921 ..	28,906,611	29,131,727	27,609,227
1920 ..	26,796,606	27,313,396	29,804,557
1919 ..	26,759,502	26,397,119	24,418,169
1918 ..	26,483,747	26,757,002	26,204,915
1917 ..	23,097,668	26,428,252	22,968,751
1916 ..	22,179,085	†30,406,454	21,980,168
1915 ..	15,241,966	14,368,636	15,891,966
1914 ..	17,904,636	16,426,306	14,430,626
1913 ..	‡55,652,423	15,552,096	15,213,746
1912 ..	10,220,396	11,983,746	13,190,396

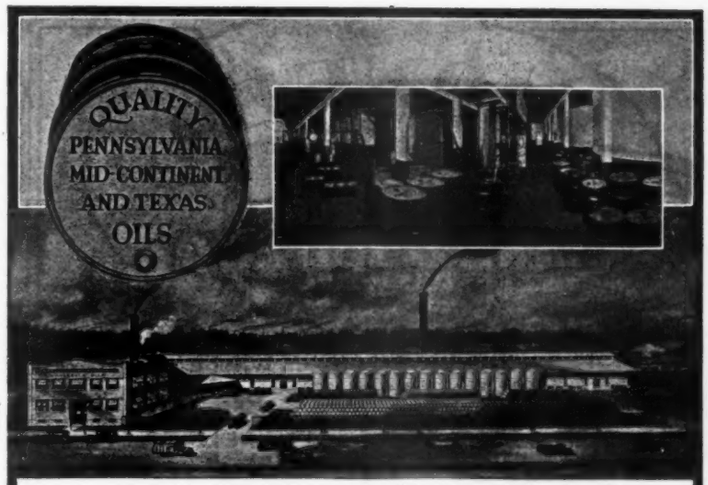
	Fourth Quarter	Totals
1923	$37,545,805	$138,423,295
1922	*43,000,349	129,039,865
1921	29,586,727	115,294,292
1920	31,861,824	115,776,793
1919	28,326,687	105,901,477
1918	24,035,252	103,480,916
1917	27,463,252	99,957,923
1916	24,062,168	98,627,875
1915	16,898,636	62,401 204
1914	14,931,306	62,692,884
1913	21,377,096	107,795,361
1912	16,392,096	51,686,634

*Includes aggregate extra disbursements of $11,600,000 by four eastern pipe line companies. †Includes $6,613,786 disbursed by National Transit Co. in adjustment of capitalization. ‡Includes $39 336,352 disbursed by Standard Oil Co. of New Jersey from re payment of loans to former subsidiaries

NEW MARKETING CO. IN KANSAS CITY, MO.

E. F. Borgolte and Mike Taxman have organized the Atlas Petroleum Co., with headquarters in Kansas City, Mo. The new concern will market all petroleum products. Both Mr. Borgolte and Mr. Taxman are widely known in jobbing and refining circles of the Mid-Continent and Middle West.

Mr. Borgolte for five and one-half years was vice president and manager of the Kansas City offices of the Acme Petroleum Co. Mr. Taxman was connected with the Taxman Refining Co., retiring from that organization when it was purchased by Cosden & Co. last week.



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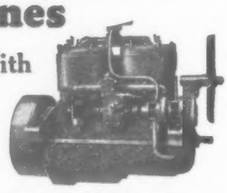

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CHESTER TO TAKE HIS CASE TO THE PUBLIC

(Continued from Page 173)

marks a distinct departure from the quiet and unobtrusive method that has been pursued by a comparatively small group of men in promoting an American concession for oil in Mesopotamia. Its result may be watched with interest.

Not only will such an American oil station promote American commerce but it will insure fair treatment for the commerce of the world. The "invisible tariffs" that have been met by American vessels in the form of discrimination in the purchase of bunker coal, will not exist against any other nation if Americans control the oil station to be supplied by Mesopotamian oil. No such charge has ever been made against any American bunkering station.

It is now recognized that before there can be a reaffirmation of the Turkish oil concession to the Chester group or to any other group of Americans there must be a resumption of diplomatic relations with that country. Officially we have never been at war with Turkey and the Turks have been traditionally friendly to Americans. Since the outbreak of the World War, however, we have had no diplomatic relations with the Turks who did not recognize Admiral Bristol, our high commissioner, as a diplomatic officer since the close of the World War. Also there will have to be recognition of Turkey by some other of the leading powers so that there may be a concord of views and international sanction of action when taken to avoid a continuation of opposition and intrigue that has characterized foreign relations with Turkey since the war. By such a procedure there will be a clearing up of diplomatic misunderstanding which is important to place such concessionary rights on a firm foundation encouraging to investment of private capital. Undoubtedly Turkey will in the near future be reestablished in the family of nations. All of these matters will be discussed by Admiral Chester during his tours of the country.

NEW OIL BURNER IS PRODUCT OF 8 YEARS

(Continued from Page 180)

result of eight years of testing and development. The burner, briefly described, sprays the oil and combines it with air so a vaporous combustible mixture is obtained. This mixture is ignited by an electric spark terminal, and the resultant flame is projected through a gas generator tube into the combustion chamber of the furnace. The thermostat which regulates the automatic control of the burner is a small instrument which can be placed on the wall in any room at a convenient point and whenever the temperature of the house drops below the point for which this regulator is set, a themostatic switch in the cellar is closed, the control motor switch of the burner is actuated and this in turn puts in motion the operating motor of the burner which immediately begins to function and produce heat. When the temperature is restored to the indicated point, the burner is automatically shut off and remains idle until the thermostat again calls for action.

Other Features of Operation

When the burner begins to operate, oil is drawn up to the aspirating nozzle from a float chamber in which a constant level of fuel is maintained by means of the float. This float feed valve is not depended upon, however, to shut off the fuel during the idle time of the burner. A positive shut off is provided within a filter chamber of a valve which is held off its seat by air pressure as long as the burner is operating, and which closes by means of a spring and shuts off the fuel as soon as the burner becomes idle. The air pressure which keeps this valve open during the burner's periods of activity is supplied by a small pump, the first purpose of which is to furnish the compressed air needed for the oil feed nozzle,

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or aspirating device. This feature of oil feed control insures that no oil will flow through the burner after it is stopped. Special attention has been given to the volume of air. The primary air, which passes through the oil nozzle and sprays the oil is supplied by a small pump. This air is definitely regulated so it delivers just the pressure required to feed whatever volume of fuel may be needed for combustion per hour. The secondary air is supplied to the ignition cone where the vaporous mixture of oil and air is ignited, and also passes around the outside of the ignition cone into the generating tube where it forms an envelope around the flame core. The air envelope mixes to a partial extent with the burning fuel as it progresses toward the nozzle of the burner, but the velocities are so proportioned that the final mixture of air and fuel, the complete combustion, takes place outside the tube and in the combustion chamber of the furnace itself, where the burning gas is applied at the greatest intensity for maximum heating. A safety control switch is a patented feature of the burner. A small counter balanced "flapper" valve is placed on the wall of the generator tube so that it is actuated by the pressure in the tube. When the burner is operating this valve is forced open, and when the burner is idle and the inner pressure eliminated the valve drops back on its seat. If for any reason there is not proper ignition and combustion of the fuel in the generator tube, the "flapper" valve remains on its seat, the emergency switch is actuated and the control motor prevents further operation. This guards against continued operation of the burner if at any time during an active period there should be a derangement of the process in the generating tube. An emergency stop control is provided which is instantly responsive to combustion conditions.

The operating motor is of the "repulsion-induction" type, provided with a short-circuiting device. In operation it starts as a repulsion motor, but upon reaching its speed, due to the short-circuiting device, continues to run as an induction motor. The air for the burner is taken in through flange openings in the motor housing, the air passing around the motor and cooling it as it enters. The control motor is really a motor-driven switch for the operating motor described, and means is provided by a distributing plate selective switch for timing the sequence of events, first to start and stop the motor normally, and secondly to stop the burner in case of failure of combustion, through the action of the "flapper" valve. The operating action progresses from the thermostat in one of the upper rooms to the control motor, to start the operating motor. The latter drives the air pump and the blower, starts to feed oil and puts the ignition circuit in action. The fuel proportioning device is a small nozzle with a center aperture through which the air passes under pressure. The oil is drawn by vacuum from the float feed device by this air and sprayed out into the igntion cone. It is there partially mixed with the secondary air and ignited by the electric spark terminal. In addition to spraying the oil, so that it can be mixed with air for ignition, the nozzle functions as a fuel-proportioning device.

DUTCH GUIANA BARRED

A decree has been issued relating to exploration for petroleum in Surinam, Dutch Guiana, on the north coast of South America, in the name of Queen Wilhelmina of Holland. The system set forth in the decree is similar to that followed in the Dutch East Indies, where Americans and others foreigners have virtually been excluded from petroleum development, despite protests. In Surinam, it is understood, oil concessions may not be granted to any but Dutch subjects, residents of Holland or of Surinam, and corporations of Holland or Surinam. However, the exclusion of foreigners from this field is not regarded as very important, owing to the fact that experts say there appears to be no oil in Dutch Guiana.

POWELL VALVES

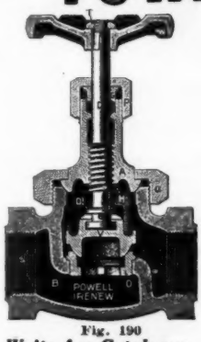

Fig. 190
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California Refined Petroleum Statistics For Month of August

By C. E. Steidel

Thirty-five refineries reported to the United States Bureau of Mines as operated during August, with an aggregate daily indicated capacity of 545,970 bbls. of crude oil. These plants were operating at 74 per cent of their capacity, running to stills a daily average of 404,374 bbls. of crude oil.

Gasoline

The production of gasoline during the month of August amounted to 99,955,286 gallons, a daily average of 3,224,364 gallons. This is an increase of 6,213,199 gallons over output in July. Compared to the production in August, 1923, a decrease of 9,210,633 gallons is noted. Stocks of gasoline decreased 15,584,243 gallons, and at the close of the month amounted to 245,834,954 gallons. Production of engine distillate decreased slightly during August, there being 8,137,180 gallons produced. Stocks of engine distillate increased 636,600 gallons during the month.

Kerosene

Kerosene production amounted to 22,435,015 gallons, which is an increase of 2,216,031 gallons over July output. Stocks at the end of August were 31,911,021 gallons, an increase of 1,027,878 gallons over July stocks.

Gas and Fuel Oils

The production of gas and fuel oils was 381,271,491 gallons, an increase of 15,836,516 gallons over output in July. Stocks decreased 17,372,533 gallons during the month, and at the end of August amounted to 786,787,819 gallons.

Lubricants

The output of lubricants during August was 8,599,182, a decrease of 488,244 gallons under July production. Stocks remained approximately the same, there being 16,482,714 gallons on hand August 13.

Refinery Output in California for August

Oils run to stills, bbls.:	
Domestic crude	12,535,584
Unfinished oils rerun	969,341
Natural gas gasoline; run to stills or blended at refinery	182,327
Total oils run	13,677,252
Refined products—	
Gasoline, gallons	99,955,286
Engine distillate, gallons	8,137,180
Kerosene, gallons	22,436,015
Gas and fuel oils, gallons	381,271,491
Lubricants, gallons	8,599,182
Wax, pounds	
Asphalt, tons	45,933
All other finished products, gals.	7,320,288
Unfinished products, gallons	28,467,428
Refinery losses, gallons	7,437,145
Stocks on Hand at the Refineries in California August 31	
Crude oil and unfinished products, bbls.:	
Domestic crude	7,304,680
Unfinished oils	*11,577,237
Total oils to berun	18,881,917
Finished products:	
Gasoline, gallons	245,834,954
Engine distillate, gallons	6,176,474
Kerosene, gallons	31,911,021
Gas and fuel oils, gallons	786,787,819
Lubricants, gallons	16,482,714
Wax, pounds	
Asphalt, tons	30,173
All other finished products, gals.	182,813

*Includes 370,609,236 gallons of tops (crude naphtha) in storage.

NEW SCOTCH REFINERY CLAIMS WORLD RECORD

At Grangemouth, on the Firth of Forth, Scotland, there has recently been completed the refinery of Scottish Oils, Ltd., designed for the treatment of Persian crude oil. The new refinery is of the most modern type and an important feature is the care taken to minimize heat losses, with the result that it is probably ahead of any other plant of its kind in the world for economy in method of treatment of the oil.

The power unit forms the center, the refining units being grouped around this, allowing ample room for expansion. The boiler house is equipped with the latest type of water-tube boilers, which supply superheated steam to duplicate sets of turbine-driven generators. The electricity so produced is used to operate the multitude of pumps, etc., throughout the refinery, and the exhaust steam from the

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turbines is then utilized in refining the oil.

The crude oil stills at Grangemouth are believed to be the largest used in any oil refinery, and they are elaborately equipped with dephlegmators, analyzers, and condensers to free the vapors from mechanical impurities and then to condense them into liquid. In the design of these stills special attention has been given to the question of fuel economy by such methods as utilizing the hot residue to heat the incoming crude, and by utilization of the hot flue gases. At present there are five crude stills in operation, and these are so completely equipped that they yield no less than 21 different distillates, which can be collected separately or combined, according to the products required.

DANCIGER BROS. SELL LEASE IN GUADALUPE

LULING, Tex., Oct. 4.—Another sale of Luling oil field properties has just been completed, whereby Danciger Brothers have disposed of their 27-acre lease out of the McKean place in Guadalupe to Deidrich & Armstrong, agents for California interests, the price running around $200,000, according to reports. The Danciger lease was one of the best in the field, with eight good wells, making a total of 1,500 bbls. of oil daily. It has been holding up steadily for the past several months and it is on the basis of production that oil men are basing estimates of the purchase price, as no details were made public.

Classified Wants

Pages 210-211

CYLINDRICAL TANKER

A contract has been signed between the Chantiers and Ateliers de la Gironde at Bordeaux and the Standard Oil Co. for the construction of a special motor vessel for the transport of lubricating oil. It is specified that the boat shall be constructed on the longitudinal system and that cylindrical tanks must be provided for stowing the liquid. Its length is to be 400 feet, breadth 55½ feet, and displacement, 10,000 tons.

NEW STORAGE RATES

OIL CITY, Pa., Oct. 4.—New rates for the storing of crude oil will go into effect in the National Transit Co. system on November 1. The new rate will be 90 cents per 1,000 bbls. a day in place of 50 cents now charged. After the oil is in storage for six months it will take a rate of $1.20 while 80 cents is now charged.

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Otherwise property will be sold free from all liens and encumbrances. Right reserved to reject any and all bids, and are subject to the approval of the Court.

Bids should be sealed and plainly-marked, and will be opened by the undersigned on Wednesday, October 15, 1924, at 12:00 o'clock, standard time, at the office of the Receiver, Bank of Commerce, Lexington, Kentucky.

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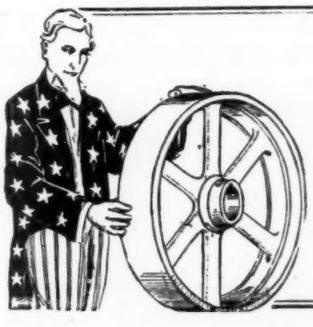
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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS PIPE LINE STATEMENT FOR JULY

Runs

	Month	Dy. Av.
*Prairie P. L. Co.	3,534,000	114,000
Gulf P. L. Co.	1,188,157	38,327
Texas P. L. Co. of Okla.	354,877	11,449
Magnolia Pet. Co.	1,061,532	34,243
Empire P. L. Co.	850,573	27,438
Cosden P. L. Co.	1,027,411	33,142
*Sinclair P. L. Co.	1,224,624	39,504
*Other lines	8,153,000	263,000
Total July	17,394,174	561,103
Total June	16,592,806	553,093
Difference	801,368	8,010

Shipments

†Prairie P. L. Co.	3,617,585	116,696
Gulf P. L. Co.	1,094,565	35,309
Texas P. L. Co. of Okla.	443,971	14,322
Magnolia Pet. Co.	1,040,230	33,556
Empire P. L. Co.	735,385	23,722
Cosden P. L. Co.	839,149	27,069
†Sinclair P. L. Co. (est.)	1,674,000	54,000
*Other lines	7,657,000	247,000
Total July	17,101,885	551,674
Total June	16,485,850	549,527
Difference	616,035	2,147

Stocks

*Prairie P. L. Co.	23,500,000
*Prairie Oil & Gas Co.	2,000,000
Gulf P. L. Co. and Gypsy Oil Co.	9,464,090
The Texas Co.	7,094,322
Magnolia Petroleum Co.	8,473,266
Empire P. L. Co.	3,342,617
Cosden P. L. Co.	2,939,725
*Sinclair P. L. Co.	29,000,000
Carter Oil Co.	18,246,330
*Other lines	9,200,000
Total July	113,260,350
Total June	111,714,192
Difference	1,546,158

*Estimated. †Includes shipments of Texas crude oil.

Note: Stocks do not include approximately 8,300,000 bbls. of crude oil held in storage on private tank farms and leases.

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for July and August:

	July, '24	Aug., '24
Nat. Transit	195,724.63	181,414.09
S. W. Pa. P. L.	86,923.31	81,053.49
Eureka P. L.	382,209.08	345,884.02
Buckeye P. L. (Macksburg)	269,834.77	260,181.20
Buckeye P. L. (Cleveland)	15,507.35	13,813.10
Buckeye P. L. (Lima, etc.)	144,639.48	133,212.27
Indiana P. L.	14,029.75	12,415.93
Cumberland P. L.	372,592.14	333,217.34
N. Y. Transit	19,200.74	18,749.61
Tidewater P. L.	150,278.48	145,298.64
Pure Oil P. L.	191,736.38	186,362.59
Emery P. L.	38,578.26	37,151.95
Indian Ref.	68,317.73	60,022.97
Paragon Dev.	40,885.28	41,247.90
Pittsburgh P. L.		8,191.73
Total	1,990,457.38	1,858,216.83
Daily average	64,208.30	59,942.48

Note: Indian Refining Co. also reported other receipts of 339,488.37 bbls. Paragon Refining Co. had other receipts of 100,119.59 bbls. Paragon Development Co. had other receipts of 4,793.37 bbls. Pittsburgh Pipe Line had other receipts of 4,565.10 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for July and August:

	July, '24	Aug., '24
Nat. Transit	303,876.41	271,259.10
S. W. Pa. P. L.	271,073.29	251,743.43
Eureka P. L.	165,023.19	213,589.82
Buckeye P. L. (Macksburg)	93,605.19	204,539.98
Buckeye P. L. (Cleveland)	876.86	975.11
Buckeye P. L. (Lima, etc.)	433,656.26	652,140.37
Indiana P. L.	775,601.07	775,599.54
Cumberland P. L.	156,012.46	178,694.99
Crescent P. L.	19,073.73	5,925.24
N. Y. Transit	618,568.71	354,470.00
Northern P. L.	74,946.19	102,861.64
Tidewater P. L.	186,376.98	83,514.81
Pure Oil P. L.	176,478.48	189,388.30
Emery P. L.	40,636.74	44,128.24
Paragon Ref.	113,954.06	96,765.40
Indian Ref.	384,871.28	356,300.95
Paragon Dev.	35,090.09	23,117.96
Pittsburgh P. L.		11,702.21
Total	3,849,810.99	3,816,717.09
Daily average	124,187.45	123,119.90

Gross Stocks

The gross stocks held by various pipe lines in the oil producing section of New York, Pennsylvania, West Virginia, Ohio Indiana and Kentucky at the close of July and August were as follows:

	July, '24	Aug., '24
Nat. Transit	861,178.46	868,774.55
S. W. Pa. P. L.	695,175.45	704,080.51
Eureka P. L.	2,070,912.53	1,724,768.60
Buckeye P. L. (Macksburg)	463,792.75	307,678.96
Buckeye P. L. (Cleveland)	67,945.23	41,396.68
Buckeye P. L. (Lima, etc.)	3,857,335.00	4,247,229.25
Indiana P. L.	630,362.03	639,240.14
Southern P. L.	472,748.67	606,326.30
Southern P. L.	472,718.67	606,326.30
Crescent P. L.	64,617.36	58,570.05
N. Y. Transit	734,190.19	934,491.17
Northern P. L.	794,981.90	731,182.89
Pure Oil P. L.	381,208.42	372,139.83
Emery P. L.	13,071.97	6,883.96
Paragon Ref.	161,091.89	163,900.12
Indian Ref.	150,247.74	188,296.83
Paragon Dev.	14,680.18	12,195.03
Pittsburgh P. L.		6,137.24
Total	12,062,361.32	12,221,675.55
Increase	518,156.90	159,314.23

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of July and August, showing the gross stocks of the above fields:

	July, '24	Aug., '24
Pennsylvania	3,801,868.35	3,501,370.36
Lima	1,236,881.61	1,255,030.74
Kentucky	1,551,765.78	1,471,375.42
Mid-Continent	6,367,227.04	6,866,141.67
Illinois	104,518.54	127,757.36
Total	12,062,361.32	12,221,675.55

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1921	1922	1923	1924
Jan.	64,460	67,702	75,790	62,638
Feb.	70,054	75,096	71,093	68,023
March	68,555	78,531	76,592	68,721
April	65,036	75,462	75,614	71,058
May	65,466	77,592	77,365	63,942
June	62,438	76,193	77,593	63,230
July	59,486	76,435	71,879	64,208
August	64,888	79,387	76,910	59,942
Sept.	60,110	78,512	72,358	.....
Oct.	57,688	77,209	76,256	.....
Nov.	58,470	75,313	70,762	.....
Dec.	61,000	73,351	69,271	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for past four years:

	1921	1922	1923	1924
Jan.	115,550	119,792	171,067	145,518
Feb.	96,736	111,362	164,219	148,732
March	84,168	127,753	185,487	147,098
April	101,015	127,068	170,751	147,611
May	100,253	127,840	177,102	134,997
June	105,037	137,638	173,598	143,010
July	97,096	137,872	168,330	124,187
August	101,652	153,275	142,766	122,120
Sept.	117,440	158,761	137,266	.....
Oct.	105,728	165,345	134,597	.....
Nov.	121,803	166,677	131,426	.....
Dec.	104,023	172,861	139,909	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields including oil received from other lines, at the close of each month for the past four years:

	1922	1923
Jan.	16,297,858	14,040,567
Feb.	17,009,293	14,028,437
March	16,877,937	13,873,146
April	16,777,842	13,737,575
May	16,948,962	13,515,522
June	16,810,169	14,541,263
July	16,660,286	14,645,584
Aug.	16,235,229	14,770,529
Sept.	16,228,545	14,803,444
Oct.	15,757,746	14,504,111
Nov.	15,171,972	14,157,726
Dec.	14,323,765	13,444,361

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and the figures counted in the stocks and averages reported above:

1923—	Receipts	Shipments
Aug.	3,199.07	2,769.34
Sept.	2,829.79	5,822.33
Oct.	2,694.23	5,361.81
Nov.	2,980.66	4,150.98
Dec.	2,893.07	3,499.27
1924—		
Jan.	2,942.19	3,641.71
Feb.	2,151.78	1,926.55
March	3,398.78	1,716.22
April	3,311.84	2,066.78
May	3,036.50	5,338.33
June	3,188.31	497.01
July	3,067.74	3,334.39
Aug.	2,901.36	6.31

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Sept. 1	3,297,1[illegible]
Runs from wells	691,3[illegible]
Other receipts	130,[illegible]
Regular deliveries	687,[illegible]
Other deliveries	164,[illegible]

The amount of Illinois oil run by the Tidewater Pipe Line Co. in August was 28,470.81 bbls., and deliveries were 31,[illegible] bbls. Adding these figures to those of the Illinois Pipe Line Co., makes the runs and deliveries from the Illinois field as follows:

1923—	Runs	Deliveries
August	594,747.94	587,152
September	542,561.59	566,[illegible]
October	576,867.09	547,[illegible]
November	546,859.43	585,[illegible]
December	534,185.04	587,[illegible]
1924—		
January	493,337.26	504,[illegible]
February	535,490.70	565,[illegible]
March	611,288.26	569,[illegible]
April	514,356.42	533,[illegible]
May	751,080.44	570,[illegible]
June	765,060.87	628,[illegible]
July	759,646.84	557,[illegible]
August	720,467.73	573,[illegible]

The Tidewater Pipe Co., Ltd., also delivered in August 155,282.07 bbls. of Oklahoma oil. The total deliveries of all grades of the Tidewater were 270,791.70 bbls.

AVERAGE WEEKLY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

Av. bbls. per wk.—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Pt. Arthur Sabine Pass	Tampa	Total	Total All Ports
May	42,903	32,194	615,709	92,706	61,642	846,154	.....	70,127	.....	.....	70,127	916,[illegible]
June	121,800	34,300	581,000	103,369	51,331	891,800	.....	.....	.....	.....	.....	891,[illegible]
July	37,710	16,129	473,516	84,452	42,452	654,249	.....	16,936	.....	.....	.....	671,[illegible]
August	114,032	33,419	654,387	71,806	33,871	907,515	$07,515	.....	6,774	.....	.....	914,[illegible]

AVERAGE WEEKLY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Av. bbls. per wk.—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Pt. Arthur Sabine Pass	Tampa	Total	Total All Ports
March	148,358	141,806	283,458	124,642	292,642	990,906	463,806	365,358	223,552	55,545	1,108,261	2,099,[illegible]
April	152,369	154,931	913,900	94,962	248,969	971,131	382,900	348,131	119,000	15,869	865,900	1,837,[illegible]
May	156,485	134,602	288,903	59,612	300,097	939,699	316,679	295,358	199,591	36,164	848,792	1,788,[illegible]
June	120,169	108,731	474,931	68,131	239,400	971,362	412,741	251,762	159,831	33,831	858,165	1,829,[illegible]
July	62,097	81,291	445,067	38,418	277,970	904,843	320,194	273,455	130,739	34,973	759,361	1,664,[illegible]
August	80,839	57,355	247,710	98,903	207,065	691,872	$70,549	238,677	115,839	14,677	739,742	1,431,[illegible]

GROSS PRODUCTION AND DAILY AVERAGE IN THE UNITED STATES FOR 12 MONTHS

1923—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Wyoming-Montana	Other Fields	Total
September:	Month	25,762,487	12,812,220	12,879,682	2,234,730	3,164,900	1,787,430	4,961,550	3,269,561	68,872,[illegible]
	Daily average	858,750	427,074	429,323	74,491	105,497	59,581	152,052	105,469	2,292,[illegible]
October:	Month	24,576,490	12,961,782	15,933,383	2,336,346	3,120,274	1,837,990	3,540,880	3,475,913	67,784,[illegible]
	Daily average	792,787	418,122	513,980	75,366	100,654	59,290	114,222	112,126	2,186,[illegible]
November:	Month	22,397,848	12,334,620	15,556,507	2,268,840	2,973,000	1,816,860	4,792,466	3,138,464	65,278,[illegible]
	Daily average	746,595	411,154	518,550	75,628	99,100	60,562	159,782	104,616	2,176,[illegible]
December:	Month	21,899,247	12,232,259	10,065,856	2,345,150	4,017,850	1,919,574	3,304,326	3,147,812	60,932,[illegible]
	Daily average	706,427	394,589	324,705	75,650	129,608	61,922	106,591	101,542	1,965,[illegible]
1924—										
January:	Month	20,912,500	12,292,833	10,336,643	2,233,878	3,686,680	1,601,175	4,636,230	2,950,500	58,649,[illegible]
	Daily average	674,597	396,543	333,449	71,738	118,925	51,651	149,556	95,177	1,891,[illegible]
February:	Month	19,341,226	12,236,637	10,496,486	2,112,853	3,302,750	1,497,450	4,168,450	2,997,700	56,153,[illegible]
	Daily average	666,939	421,953	361,913	72,857	113,888	51,629	143,740	103,369	1,936,[illegible]
March:	Month	19,913,262	13,336,851	12,077,617	2,206,425	3,882,695	1,701,593	3,993,890	3,258,000	60,370,[illegible]
	Daily average	642,363	430,221	389,601	71,175	125,248	54,890	128,835	105,097	1,947,[illegible]
April:	Month	19,299,849	13,452,240	11,726,830	2,265,090	4,068,225	1,495,582	3,901,755	3,231,000	59,439,[illegible]
	Daily average	643,328	448,408	390,861	75,503	135,608	49,853	130,058	107,700	1,981,[illegible]
May:	Month	19,833,576	14,248,057	11,923,316	2,486,696	4,659,117	1,596,761	4,033,564	3,355,000	63,136,[illegible]
	Daily average	639,793	459,615	384,623	80,216	150,291	51,507	130,109	108,226	2,036,[illegible]
June:	Month	18,807,999	14,457,390	11,516,020	2,473,320	4,756,443	1,811,880	3,798,634	3,211,500	60,833,[illegible]
	Daily average	626,933	481,913	383,834	82,444	158,548	60,419	126,621	107,050	2,027,[illegible]
July:	Month	19,274,755	15,191,860	11,820,889	2,678,834	4,598,160	1,931,641	3,728,525	3,387,990	62,612,[illegible]
	Daily average	621,766	490,050	381,319	86,414	148,321	62,311	120,275	109,290	2,019,[illegible]
August:	Month	19,112,998	16,572,104	11,805,753	2,717,398	4,400,116	1,898,246	3,816,627	3,280,017	63,603,[illegible]
	Daily average	616,548	534,584	380,831	87,658	141,810	61,234	123,117	105,807	2,051,[illegible]
	Total 12 months	251,132,147	162,128,853	146,135,982	28,349,552	46,630,210	20,896,122	48,276,897	38,703,447	742,253,[illegible]
	Daily average	686,153	442,975	399,279	77,468	127,405	57,093	131,904	105,747	2,028,[illegible]

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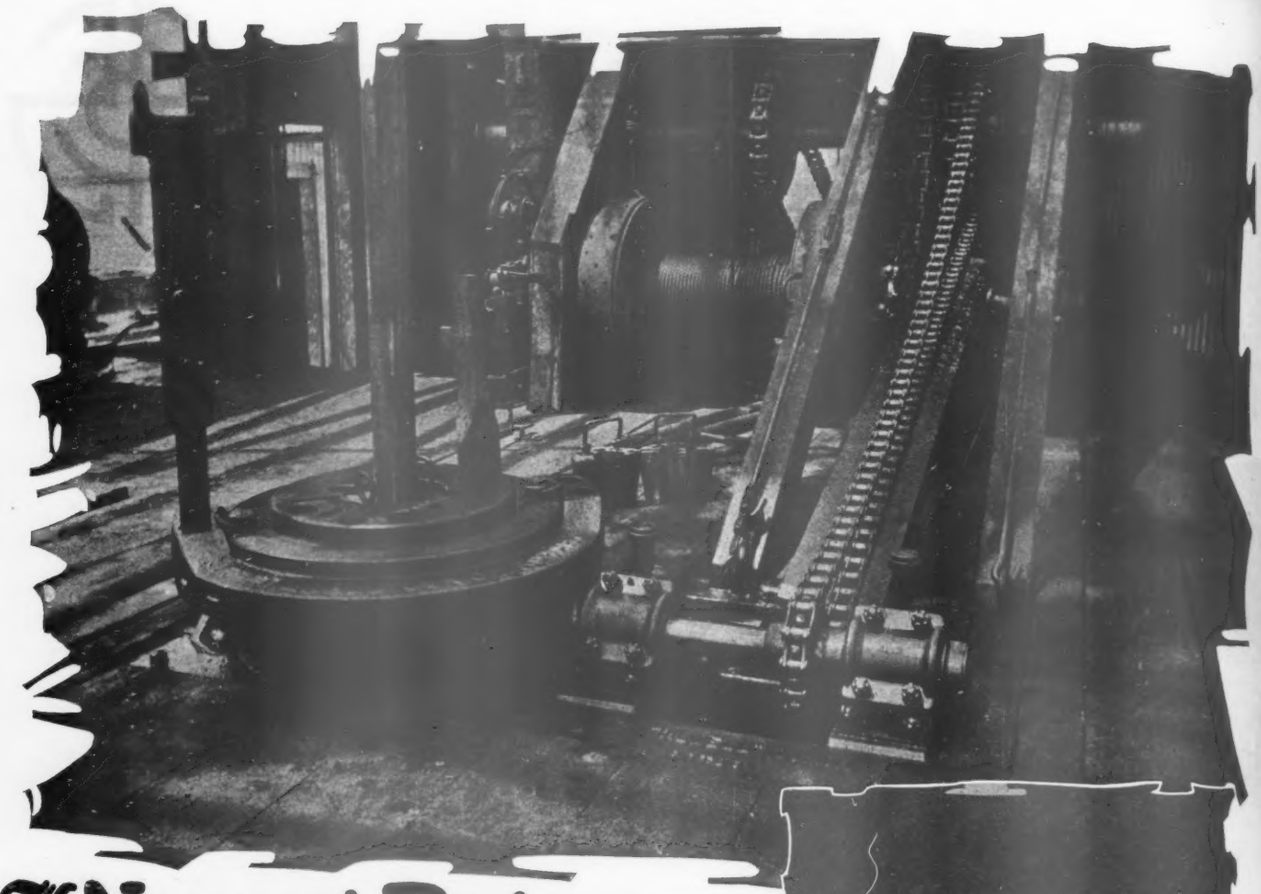

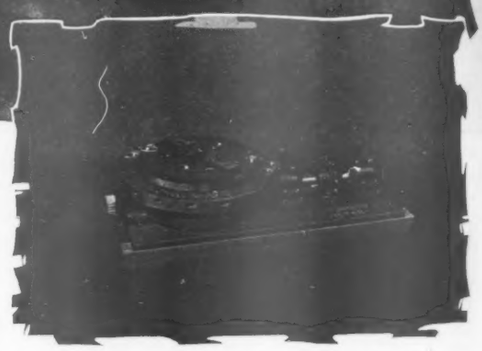

The Newest Rotary "OILWELL" Junior Rotary

The "Oilwell" Junior Rotary is, in every respect, a Masterpiece—a worthy counterpart of the world renowned "Oilwell" Imperial Rotary.

The Junior differs from the Imperial only in size and in several minor construction details.

Here are a few of the characteristics of the "Oilwell" Junior.

1. It is recommended for any depth where the small Grief Stems are used; it will handle any size of drill pipe.
2. It will pass a 17″ fishtail or a 15½″ rock bit, and handle 12½″ casing.
3. It makes up and breaks out casing, pipe, and tool joints without manual labor.
4. It breaks out joints without rotating the string in the hole.

For complete information, write for Bulletin No. 61, or inquire at any of our 100 Branches.

Above: "Oilwell" Junior Rotary being operated by an "Oilwell" Hild Differential Drive in Texas.

Below: A close-up of the "Oilwell" Junior Rotary.

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"OILWELL" ESTD. 1862 TRADE MARK (REGISTERED)

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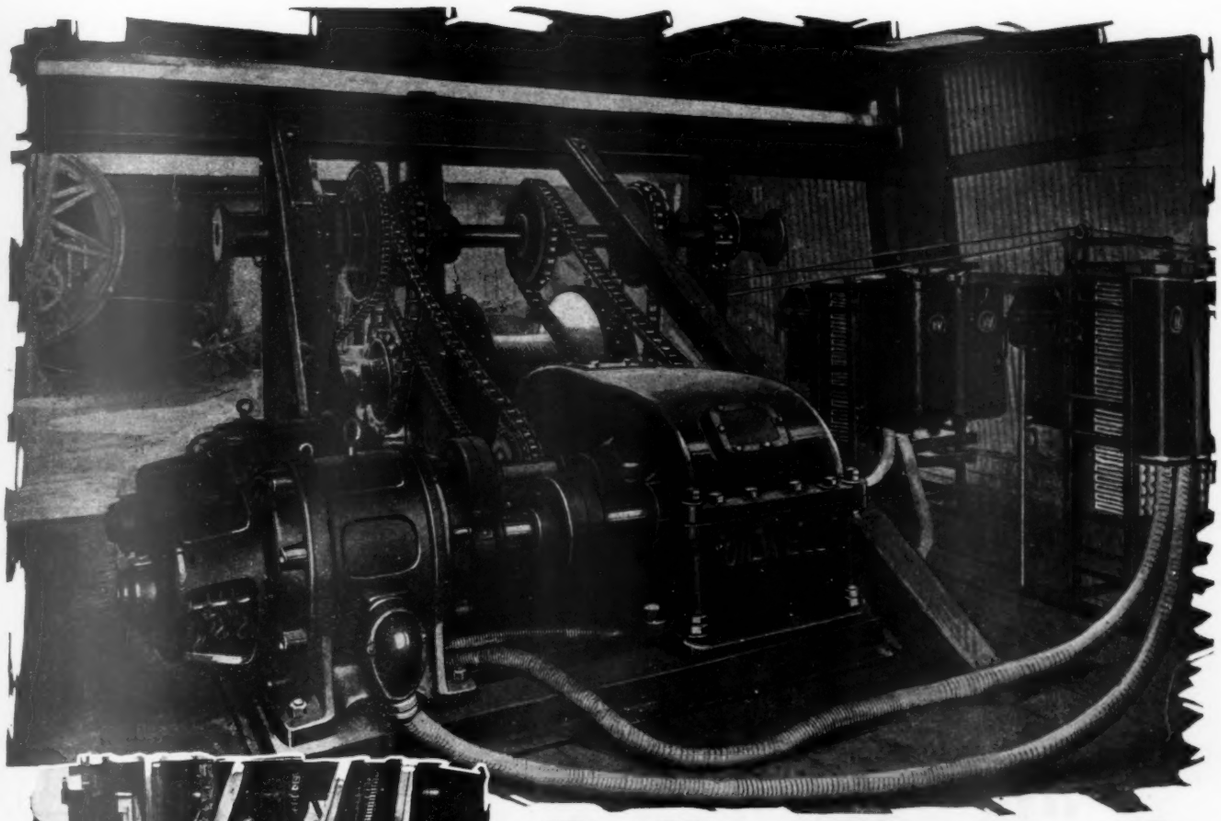

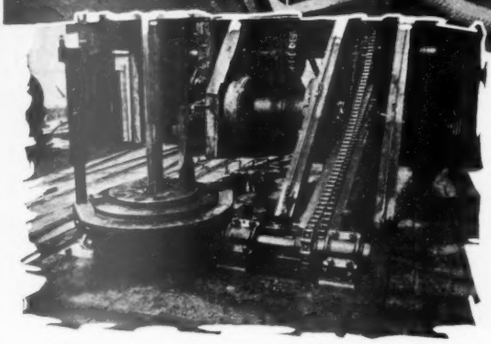

Above: The electrical "engine" end of the "Oilwell" Hild Differential Drive.

Below: "Oilwell" Junior Rotary being operated by an "Oilwell" Hild Differential Drive in Texas.

Drilling Electrically *with the* "OILWELL" Hild Differential Drive

The "Oilwell" Hild Differential Drive is an electrical unit, which is used in connection with the standard draw works or hoist in exactly the same way as a steam drilling engine is used—

But in addition, it ***automatically*** feeds the bit, and ***automatically*** regulates or varies the bit pressure according to the variation in formations encountered.

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3. The drilling range is deeper, due to safer operation of drill pipes.
4. There is less liability of wearing through casing.
5. There is more footage per bit and drilling costs are lower.
6. There is less wear and tear on the drilling equipment.
7. Mud circulation is improved, and the pump requirements are smaller.
8. The "graphic meter" registers and records a true log of the well from a power and time standpoint.

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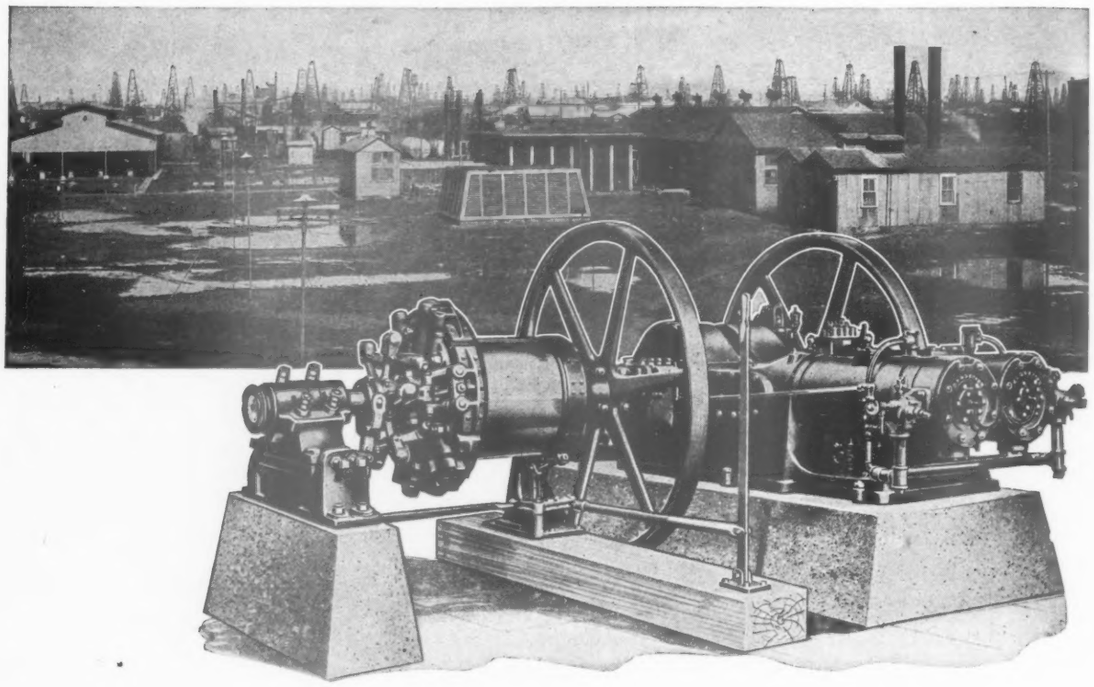

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That's what one operator said about his Bessemer after he had used it only long enough to drill five wells. Such statements from Bessemer owners are far from unusual; in fact the service rendered by Bessemer engines invariably calls forth enthusiastic praise.

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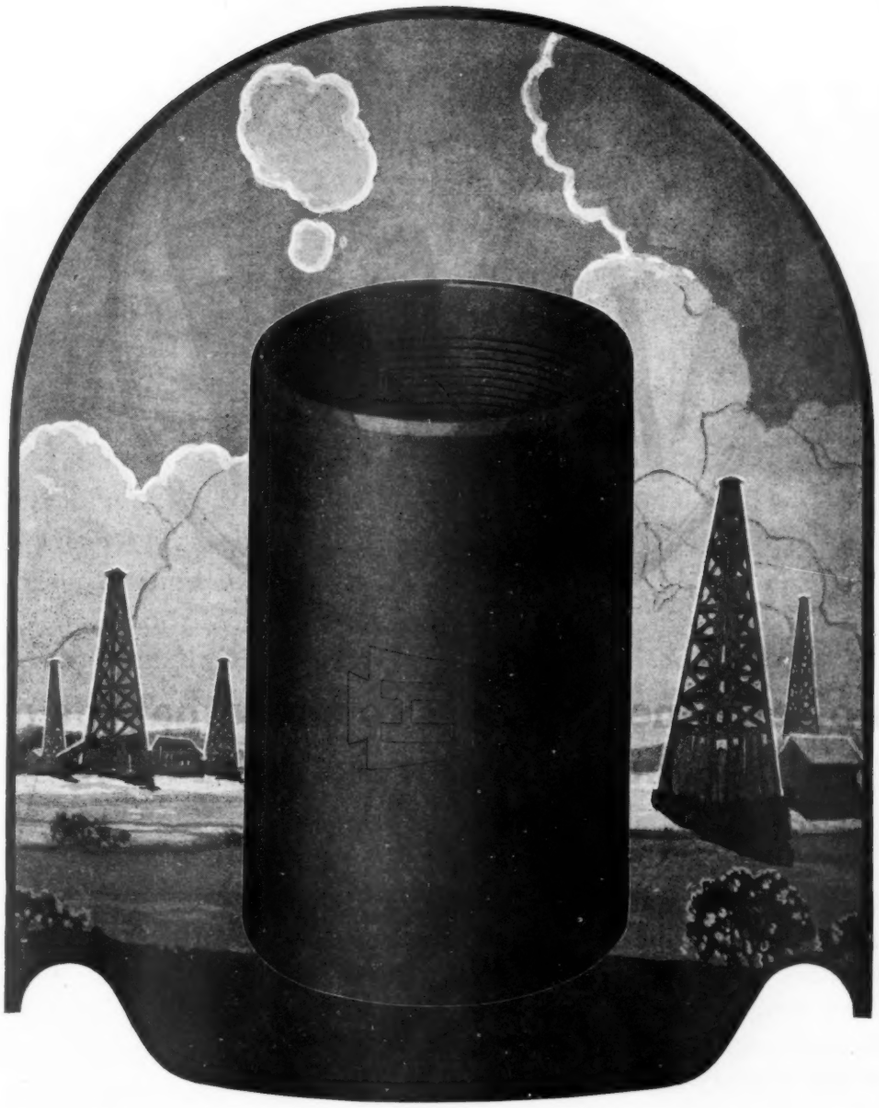

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READING'S method of manufacturing Wrought Iron Pipe is justified not only by authorities on corrosion, but by practical tests over a long period of time—and Reading Wrought Iron is made in *exactly* the same fashion as it was seventy-five years ago!

In pipe line service Reading Pipe can be depended upon to carry your oil over salt marshes, through alkali beds, or under rivers long after steel has rusted through—and been replaced.

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Objects in Circle

1 The useless shell of a steel pipe at Spring Lake, N. J., held together only by the permanent grip of a Reading Wrought Iron Coupling.

2 Showing the relative corrosion of common steel nail and Reading Cut Nail.

3 These two pipes were in the same service for the same length of time—the one in the foreground is "Reading."

4 Comparison of structural wrought iron and steel from an old building. The wrought iron was put in service again!

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READING, PA.

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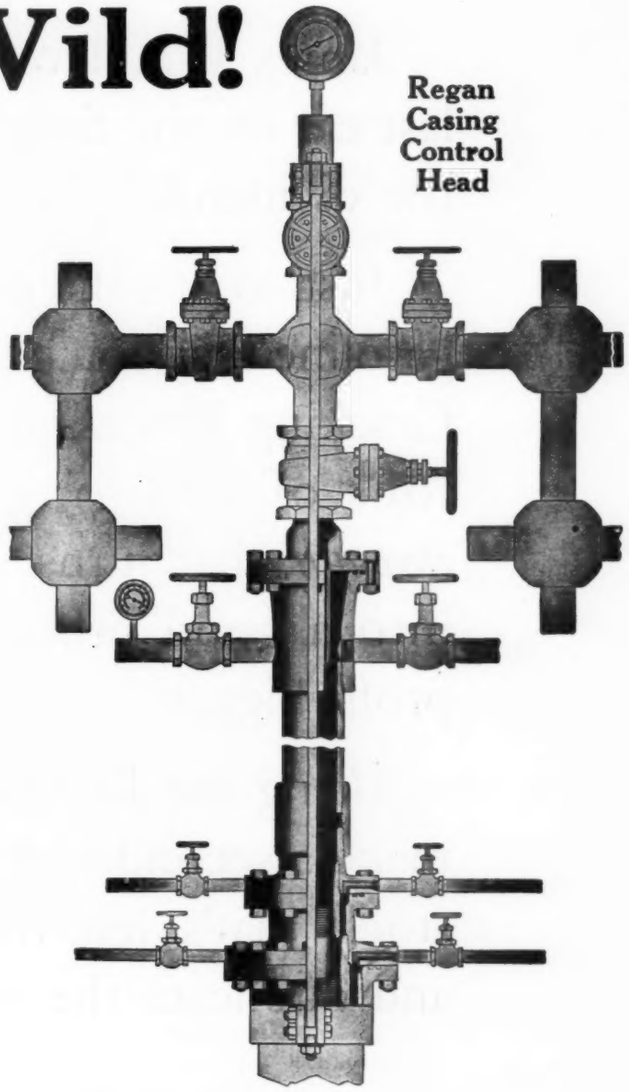
GENUINE WROUGHT IRON

Never Let Your Well Blow Wild!

There is no proof so absolutely convincing as actual performance! It is interesting, therefore, to know that since the perfection of the Regan Casing Control Head not a single well equipped with this ingenious device has gotten out of control. Here is a remarkable record of unfailing efficiency and positive dependability. As a result of this money-saving service this oilwell protector has been installed in practically all the wells at Signal Hill and Santa Fe Springs, California—and also in high-pressure fields in many different parts of the world! The Regan Casing Control Head is made in 3 types—T & B Type, Santa Fe Type and Ventura Type. A complete catalog describing the three types will be mailed to you upon request. Ask for it now—TODAY!



Regan Casing Control Head

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Manufacturers of Oil Well Equipment

Quality — Wrought on the Forge of Experience

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James J. Hill once said, "It's the last car on the freight train that pays the dividends"

Just so, it's the extra 10 gallons of gasoline that you get from the Dubbs Cracking Process from each 100 gallons of charging stock *run once through*, that turns your refinery loss into a good profit or makes a big profit bigger

Using the Dubbs Process you can make a second trip with the available stock that's left from the first run and duplicate the results

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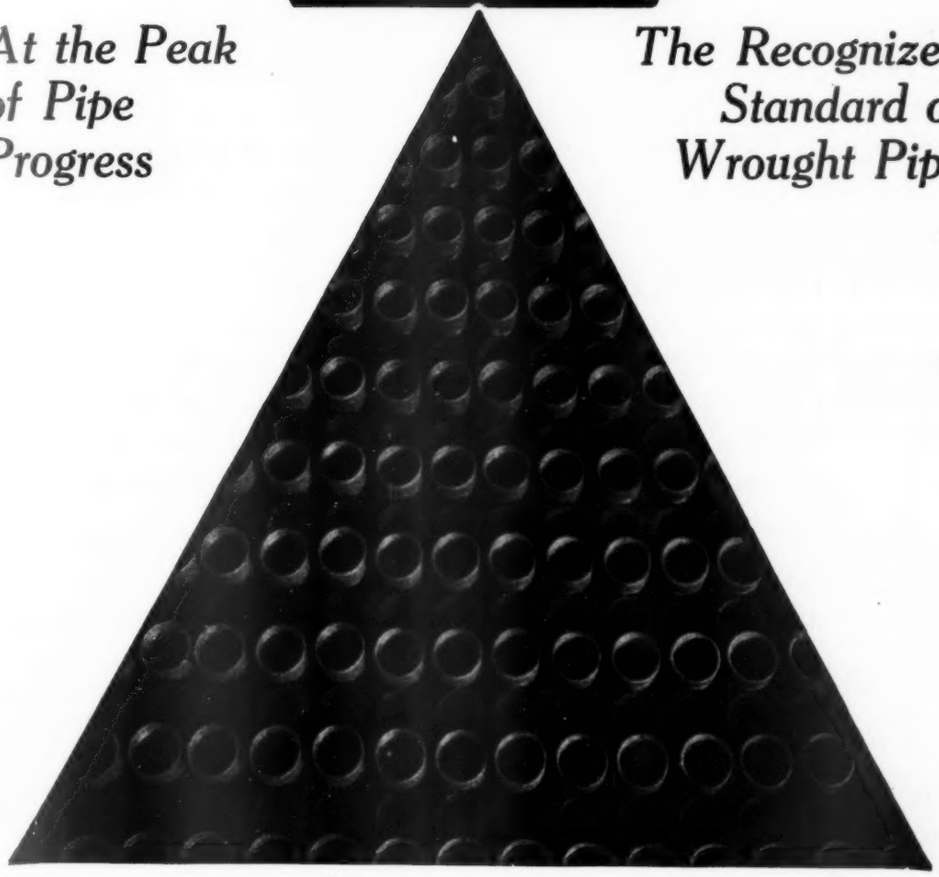
The Recognized Standard of Wrought Pipe



Uniform in chemical and physical properties. Gives clean, strong threads. Sizes under 4-inch "Spellerized" to resist corrosion. Butt-weld sizes ½ to 3" made by welding-scale removing process. Made in forty-foot lengths in certain sizes. Furnished with any type of joint or plain end for couplings or welding. Various protective coatings can be applied. Every length inspected and tested, and a kind, size and thickness for any oil and gas purpose. Ask for "NATIONAL" Bulletin No. 1—Characteristics and Advantages of "NATIONAL" Pipe.

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Thank You!

The demand for the October 2 Petroleum Exposition Number of The Oil and Gas Journal, which exhausted the large edition on the day of publication, created such interest in the second Petroleum Exposition Number of October 9 that it, too, was completely sold out within a few hours although a still larger edition had been printed.

The first exposition number, the largest and finest publication ever devoted to the oil industry, was considered unbeatable but the verdict of readers was that the second number surpassed even the first. If so it was in keeping with the aim of The Oil and Gas Journal organization which is never content with achievement but constantly seeks improvement.

Order Now!

It Will Help You!

Visitors to the International Petroleum Exposition were especially generous in their appreciation of the exceptional service extended at The Oil and Gas Journal booth which was the most crowded section of the grounds at all hours.

The Oil and Gas Journal takes this opportunity to thank its friends for their approval and is happy to have been of service to them.

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Preparing for a gusher, well No. 2 on reclaimed area of the Bibi-Eibat Sound.

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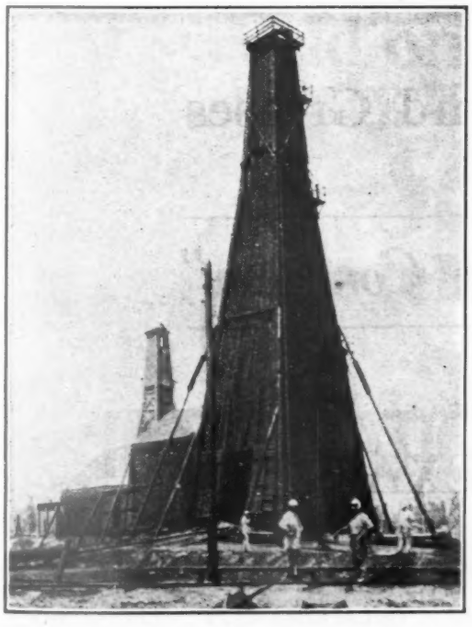
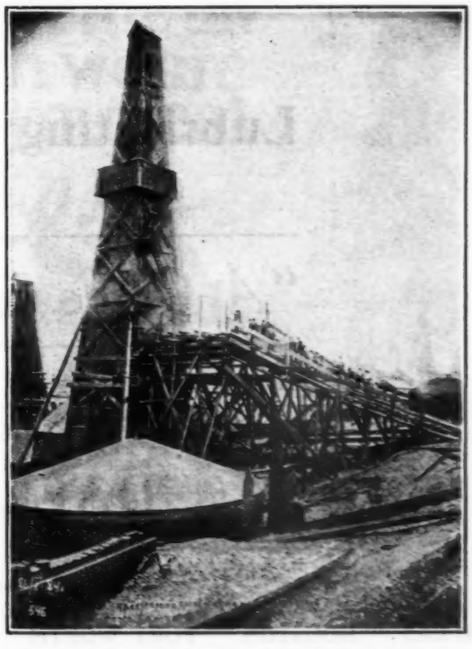


Gusher No. 23 on reclaimed area of the Bibi-Eibat Sound.



Sliding in a control block to divert the gusher to open storage. Well No. 67, Sourachani Oil Field.

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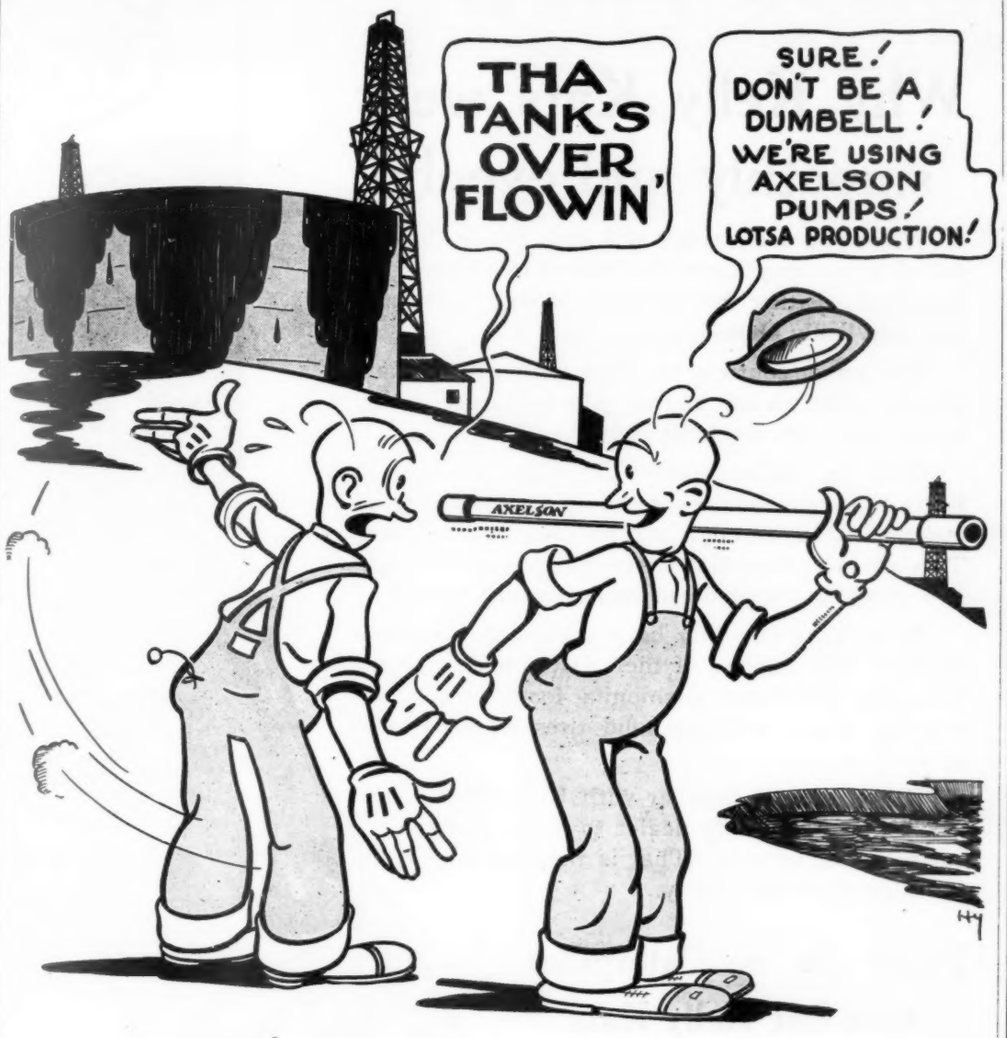

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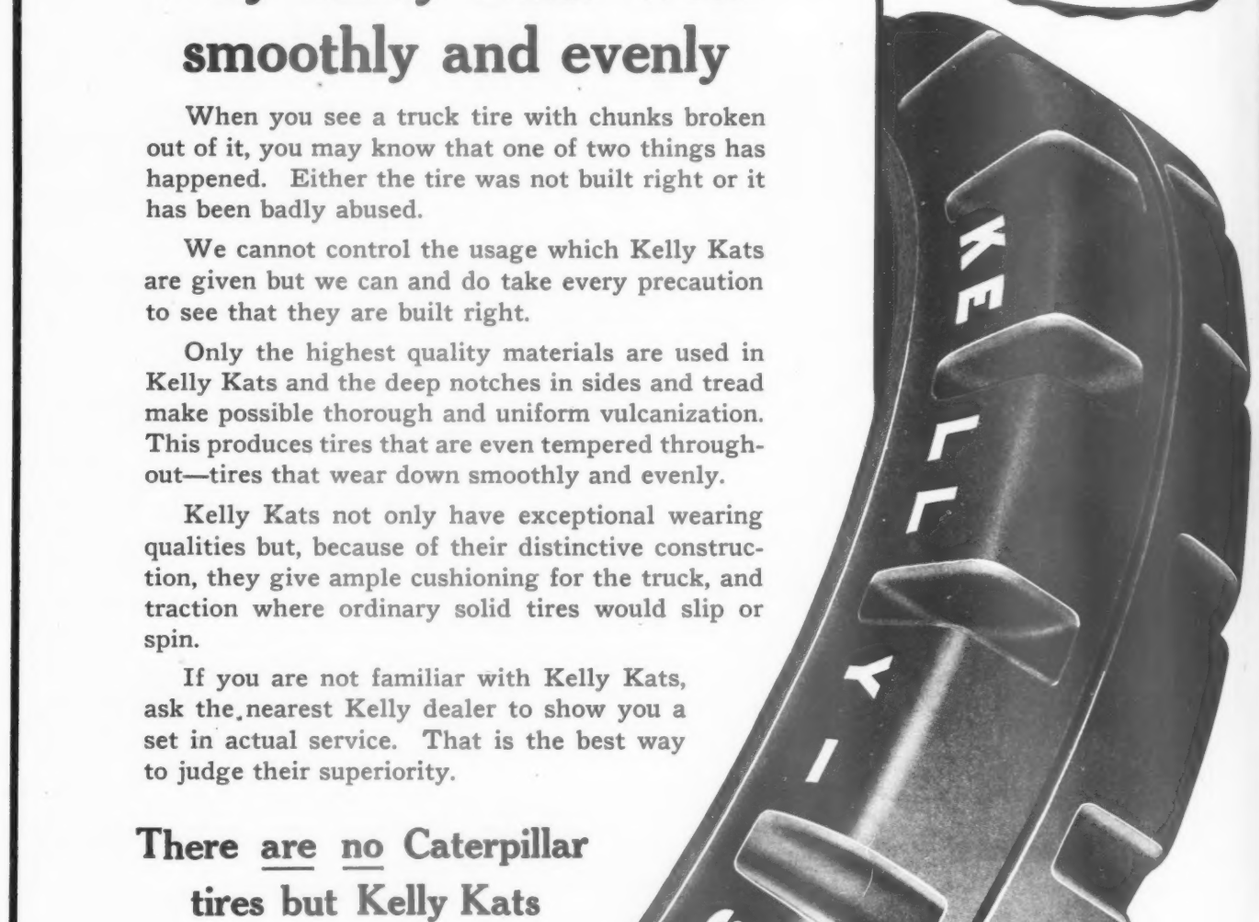

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